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Railway Age

FIRST HALF OF 1924—No. 10 NEW YORK—MARCH 8, 1924—CHICAGO SIXTY-NINTH YEAR

Lack of a Grip Nut Cost $8,000.00

"I know of a missing box bolt nut causing a wreck that cost $8,000," an old railroad man told us.

Yet recent inspection of one 90 car train disclosed eighteen of these box bolt nuts missing.

The remedy is simple.

Apply the nut that locks itself at any point on the bolt; the nut that functions on a bad bolt thread; the nut that withstands jars and vibrations.

In short, the Grip Nut.

It is a matter of record that Grip Nuts possess the greatest holding power. We will show these records to any railroad man.

Grip Nut Company

Chicago, Illinois

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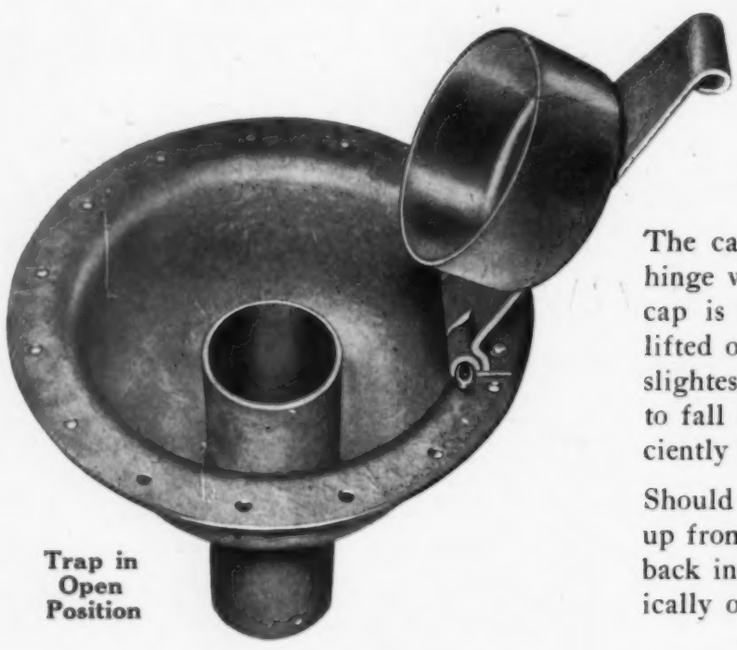
URECO

PRESSED STEEL WELL TRAP

The URECO Well Trap is made of pressed steel thoroughly hot galvanized. This treatment eliminates breakage which occurs so often in galvanized malleable iron traps.

The URECO Trap insures perfect water-seal as the cap is securely attached to bowl and cannot become misplaced or lost.

Trap in Closed Position



Trap in Open Position

The cap is supported by means of a hinge which also acts as a stop when cap is lifted. Although cap can be lifted only to such a distance that the slightest vibration of car will cause it to fall in place, it can be raised sufficiently for all cleaning purposes.

Should the cap in any way be pushed up from the outside of car, it will fall back into water-seal position automatically on slightest movement of car.

"What you don't have to spend for repairs is profit."

UNION RAILWAY EQUIPMENT CO.

McCormick Building, Chicago, Ill.

Montreal **Richmond, Va.**

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Railway Age

EDITORIAL

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Co-operation—A Competition on

TWO WEEKS AGO, in the *Railway Age* of February 23, we first announced a competition on the "Best Methods for Bringing About Co-operation Between Railways and Their Employees to Promote Efficiency." We decided to hold this competition because we believe that this subject is probably the most important problem before the railroads of this country today. That it is foremost in the minds of executives and workers is indicated by the numerous expressions that have come to us since the announcement of the competition was made. Indeed, it looks as if the time was ripe for a big advance in the improvement of relations between the managements and the men. What are the best methods of improving these relations? How can a railroad management go about the matter in such a way as to build safely on substantial foundations? How can the walls of misunderstanding and mistrust which have grown up be broken down and confidence fully restored? What we want to draw out in this competition is the most practical and constructive sort of material relating to these problems.

The railroad managements and workers have not been standing still or marking time in the solution of these questions in recent years. We have only to recall, for instance, that most radical and forward step involved in the development of an employee representation plan on the Pennsylvania Railroad; or the appointment of vice-presidents in charge of personnel on two large railroads, as well as the appointment of other officers and specialists to study and promote various forms of personnel work on a number of railroads. Nor can we overlook the larger interest which is being taken in questions relating to the education and training of employees or to the action of the board of directors of a railroad such as the Chicago, Rock Island & Pacific in authorizing the formation of a personnel department. We must not forget the far-reaching effect of the Y. M. C. A. Transportation Conference at St. Louis on "Transportation's Fundamental Need," in which the greater part of the program was given over to a consideration of this question of co-operation, not alone between the men and the managements, but with the investors and public as well.

The experiment between organized labor in the shop crafts and the management of the Baltimore & Ohio has, after a year of trial, now been fully endorsed by the shop crafts and the management, and is about to be extended to all of the shops on the system, as is noted in an article elsewhere in this issue. The co-operative bonus plan adopted by the Southern Railway and its conductors, trainmen and yardmen, is one of the latest and most striking examples of co-operation on a large scale; it also is described elsewhere in this issue. The different forms of company unions which have been established among the shop crafts on a number of the railroads would seem also to have great possibilities from the standpoint of restoring confidence and bringing about more efficient operation.

These things, as well as many others of a less striking nature, have all united to create a much better feeling between the employees and the managements and promise to be a large factor in promoting more economical and efficient operation—this in the interests of all concerned, the employees, the public, the investors and the managements. It is rather significant that the Railroad Labor Board, which was the storm center of many controversies after the war and until recent months, is having fewer and fewer questions referred to it and has not been in the limelight for some time because the railroads and their workers are settling their difficulties among themselves and without recourse to outside authorities. The time surely appears to be ripe for a step forward in the direction of mutual co-operation which will place the railroads of this country on a much better and substantial basis than ever before, and to the mutual advantage of all concerned.

It is important in taking this forward step that the practical considerations involved in the bringing about of better relations be thoroughly understood. What are the fundamental principles involved? What methods must be used to bring about a real and permanent improvement in the relations between the workers and the managements? For the most practical and constructive article on this question the *Railway Age*, as announced in previous issues will give a prize of $100. There will be a second prize of $75 and other articles which may be used for publication will be paid for at our usual rates. The articles should be addressed to Editor, *Railway Age*, 30 Church street, New York, and should be received not later than April 15, 1924.

A Bonus for Trainmen

The Southern Railway has reached an agreement with its train and yard employees which includes a plan designed to enlist their co-operation in reducing transportation expense. The plan is frankly an experiment and only time will tell whether or not it will be successful. Nevertheless it does represent a sincere attempt to bring about mutually profitable co-operation between the railway and its employees, the securing of which presents fully as important a problem as any which the railways have to face. The management has granted an increase in wages of 5 per cent under a three-year contract to these employees. In addition, a bonus is to be paid to them if the ratio to gross revenue of certain accounts in which their efficiency is reflected is not thereby increased. These accounts are 17 in number and include wages, expenses for fuel and supplies, loss and damage, the cost of clearing

wrecks and injuries to persons. For 1923 the ratio of the total of these accounts to gross revenue was 21.42. If this does not increase in 1924, each employee included in this agreement will receive a bonus of 1.5 per cent of his wages for the year. The agreement provides certain reductions in the bonus if the ratio is only slightly increased and explains how the bonus is to be computed for the years subsequent to 1924; however, it is not necessary to give the plan in detail here since it is described in full on another page in this issue. One of the chief advantages of this plan is that it will require practically no additional clerical work. It is believed that the same basis of settlement of the wage case will be offered to employees in engine service. It is a hopeful sign when a railroad management and some of the strongest unions in the railway field can agree on a progressive step such as this one appears to be.

The Improvement in Public Sentiment

THERE IS ONE POINT regarding the railroad situation upon which apparently all railway officers who come in contact with the public agree. This is that a great change in public sentiment regarding the railways and their rates has occurred. Three years ago there was an overwhelming sentiment to the effect that rates were too high, that they were burdening the industry and commerce of the country and that they must be reduced practically regardless of the financial effects upon the railways. It was widely asserted and believed that the railways were given an iniquitous "guarantee" of net return by the Transportation Act and that the valuation that had been placed upon them was much too large.

Evidences of some change in sentiment began to be visible in 1922, although even late in that year public opinion regarding railway matters was such that it was largely responsible for the election to Congress, especially from the west, of a large number of radicals. Throughout 1923, however, the change in sentiment continued, and recently it has become so marked, even in the west, as to be apparent to all observers. The western wheat grower has not been converted to the belief that the freight rates on wheat are not too high. In most parts of the country, however, complaints about railway rates and attacks upon the Transportation Act have almost ceased to be heard, and even the more intelligent wheat farmers now realize that whether their freight rates are too high or not, a reduction of them would do little good as long as the price of wheat remains relatively much lower than the prices of almost all the things the wheat grower must pay for. As far as it is possible to judge by resolutions adopted by organizations of all kinds and by the tone of the press, the prevalent sentiment throughout the country, except in the wheat belt, is now opposed to reductions of railway rates and to changes in the Transportation Act, which would reduce the net return the railways could earn and interfere with the program of expanding their facilities they are carrying out.

The only real danger in the situation at present is due to the fact that a comparatively small group of radicals apparently holds the balance of power in Congress and can so shift its votes as to be a controlling factor when there comes up some question upon which the Republicans and Democrats are manuevering for political advantage. These radicals were elected by the public sentiment of 1922. It is doubtful if most of them could now be elected if they made their campaign upon an anti-railroad platform. There is good ground for hoping that no anti-railroad legislation will be passed at the present session. If such legislation is passed, it will represent the public sentiment of 1921 and 1922 and not that of 1924.

The change in sentiment that has occurred is principally due to two things. One of these is the improvement in general business conditions. Many who thought freight rates were ruining them, when they were losing money two or three years ago, know that freight rates are not ruining them now, because they are making money. The other, and perhaps even more potent influence that has caused the change has been the public relations work on behalf of sanity in railway regulation that has been carried on.

There has been more work done within the last two years by groups of railroads, by individual railways, and even by concerns and persons not connected with railways, to educate the public regarding railway matters than ever before in history. Furthermore, the work has been done more intelligently than any having the same purpose done before. The people and railway employees, through many different channels, have been given more detailed and correct information about the true reasons for present rates, about the net returns the railways have been earning, the service they have been rendering, and the investment that is being and must still be made to enable them to handle the country's business than they ever were in the past. The consequence is that all classes of people understand the situation of the railways and the laws under which they are regulated better than heretofore.

There always have been railroad men who were skeptical about the possibility of getting the facts concerning the railroad business before all classes of people and about the ability and willingness of the people to understand the facts and to act in accordance with them. Even these doubters would have their doubts greatly reduced if they had gone out in the past, and would go out now, among business men, workingmen, farmers and editors to talk with them. They would then learn that a great increase has occurred in public intelligence regarding railway matters. Most impressive of all are editorials and articles that recently have been appearing in newspapers and magazines of all kinds throughout the country and which show that a surprising number of editors of newspapers and magazines have been carefully studying the information regarding the railway situation that has been coming to their attention and that they are presenting and interpreting it with a very high degree of intelligence and fairness. We believe, from our observation of what the newspapers are saying, that if their editors were polled on the question of repealing the Transportation Act and reducing railway valuation and rates, at least eighty per cent of them would vote in favor of letting railroad laws alone for the present and giving the railways a fair chance.

There is a lesson of great significance and importance that can be learned from the change in sentiment that has occurred and the reasons for it. This is, that most of the troubles of the railways arising from short-comings of regulation during the last quarter of a century, have been due to the fact that the railways for years did not make any real effort to present to the public the actual facts, and all the facts, regarding their business. The public was constantly being told by literally thousands of persons, innumerable things about the railroad business that were not so. Naturally, as long as the railways left these assertions uncontradicted and did not themselves try systematically and persistently to get the public's ear and make it listen to the truth, the public believed the things that the critics of the railroads said. The public is not so unfair or stupid as many railway officers apparently have believed. It always has been willing to listen to presentations of facts by spokesmen of the railways and shrewd enough to compare these statements with those made by the critics of the railways and to draw reasonable conclusions. If it has over and over again drawn wrong conclusions, this has been because the railways have not

given it information from which it could draw right conclusions.

If, as now seems not improbable, the present session of Congress shall end without any railway legislation being passed there will be afforded the railways the best opportunity they have ever had to adopt and carry out policies which will assure fair and constructive regulation in future. In the opinion of the *Railway Age,* conditions and public sentiment will be such that if railway financiers and executives manage the properties sanely, honestly and efficiently and at the same time inspire their official personnel to use the energy and ability they can use to properly "sell" the railways to the public, the railways can and will in five years be made the most popular industry in the United States. They can be made so popular that the public will be not only willing, but anxious for them to earn net returns commensurate with the importance of the railroads to the country and the necessities of adequate transportation service.

If Congress does adjourn without passing any adverse legislation, some railway officers may conclude that the emergency has passed, or that it never really existed, and that they may again begin to neglect public opinion as for years in past they did neglect it. No greater mistake could possibly be made. Repeatedly within the last 20 years private ownership in this country has approached the brink of destruction. Many of the railway officers who have complained loudly because of the hostile public sentiment that has created these crises, have been themselves very largely responsible for it, although this has been owing more to what they have not done than to what they have done. We believe that this is now generally realized, and that if the present session of Congress does end without adverse legislation, the railways will continue to improve the ways in which they deal with public sentiment.

The Promise of 1924

REVENUE freight car loadings have started creating records early this year. The loadings in January were greater than for any previous January, and so far in February the weekly figures have been larger than in January and in excess of those for any previous February. The weekly car loadings have a tendency to increase gradually throughout the course of a year from a low level in January—or in February, if weather conditions are bad—until they finally reach the highest figures for the year in October.

Including the week ended February 16, 1924, cumulative loadings for the year totaled 6,133,670, which compares with 5,905,377 for the same period of last year, and with 5,083,980 for the comparable period of 1922. The best week so far this year has been the one ended February 16; the loadings for that week totaled 935,109 in spite of its including Lincoln's birthday, which is a holiday in several important industrial states. There has never been any other year in which loadings have reached a level of 935,000 earlier than the last week in March. The year they reached such a high level that early was 1923, the loadings for the week ended March 31, 1923, totaling 938,725. In 1922, the first week in which loadings totaled 935,000, or over, was in September, in 1920 the first week was in July. In the whole year 1921 there were only two weeks in which revenue car loadings were as great as they were in the week ended February 16, 1924; these two weeks were in October.

The sudden decrease in the car surplus is another indication of the present heavy traffic volume. Car surpluses and shortages are reported for four periods in each month. The surplus in the period from January 1 to 7 averaged 353,790, the highest figure since May, 1922, which was during the coal strike. That the surplus was so large worried many people who thought it indicated a decline in business—which, of course, it did. Luckily, the aspects of the situation changed rapidly. The report for the period February 8 to 14 shows a surplus of only 127,415, a reduction roughly of two-thirds from the first quarter of January. The sudden reduction in the surplus also set to worrying some people who figured that business possibly was expanding more rapidly than the railroads could keep up with it. Second thought reminded them, no doubt, of the 21 weeks of 1923 in which loadings exceeded one million cars, and they probably remembered that in the 1923 period of heavy traffic all business offered was carried by the railroads with unusual efficiency and expedition.

It is, of course, too early to tell whether traffic in 1924 may be expected to exceed the record-breaking volume of 1923. It must be admitted, however, that the optimists are much in the majority. They point, indeed, to the heavy car loadings as one of their chief reasons for being optimistic. The credit situation is unusually favorable. Big promise is held out for the automobile industry and for building construction. One hears favorable reports of the agricultural implement industry. The large units of the steel industry are reporting as operating at 90 per cent of capacity. Many expect a large increase to be shown in the next report of unfilled orders of the United States Steel Corporation. It is of special interest that of steel purchases thus far this year 30 per cent are for railway requirements or about half over the normal of 20 per cent.

We must not forget in an excess of optimism that there are certain deterring factors in the general situation. These include, notably, such unsettlement as may result from the vagaries in the progress of the tax revision plan or from the political agitation contingent upon the sensational discussion of the oil scandal. By-and-large, however, business conditions are good and generally admitted to be much better at this time than it was expected a few weeks ago that they would be.

There are those who sound a note of caution on the ground that this is the year of a presidential election. Past experience does not support this suggestion. It particularly does not bear it out insofar as the railways are concerned. Presidential years have not proved poor years from the standpoint of railway traffic volume. They have, on the contrary, proved good years; in fact, they have usually proved to be record-breaking years. The statistics show that in every presidential year that has occurred since 1890, with the single exception of 1908, the railways were called upon to move more revenue ton-miles than they had moved in any year up to that time. This was the case in 1916; it was the case in 1920. Prior to 1916 the railway fiscal year ended on June 30, in the middle of the campaign, so that two fiscal years might have been affected. Any adverse effect of a campaign, if it existed, would be evidenced in the latter months of the one year or in the early months of the next. The railways, however, moved more revenue ton-miles in the fiscal year 1892 than in any prior year and more in 1893 than in 1892. They moved more in 1896 than in any previous year and more in 1897 than in any previous year except 1896. They carried more revenue ton-miles in the fiscal year 1900 than ever before; in 1901 more than in 1900. The years 1904 and 1905 each broke all previous records. Likewise, the years 1912 and 1913.

The fiscal years 1908 and 1909 offer the only exceptions in the entire thirty-year period. Except for these years the increase in railway traffic has continued steadily with such interruptions as it has had occurring in other than the years of presidential campaigns. It is evident, therefore, that presidential years are not slack years for the railroads; on the contrary they have been usually good years for the railroads. On the basis of the statistics the railways might at this time properly be preparing for another record-breaking year in

1924. They can, at any rate, dismiss all thought of adverse effect on railway traffic volume due to the existence of a presidential campaign.

The statement was made that business is better now than it was expected a few weeks ago it would be thus early in the year. This statement applies notably to the railway equipment market which is playing an important part in the present promising business situation. Domestic orders thus far this year have been as follows:

	Locomotives	Freight Cars	Passenger Cars
January	125	6,020	29
February*	214	29,291	326
Total—2 months	339	35,311	355

*Includes orders reported in *Railway Age* of March 1.

The feature of this tabulation is the large freight car orders in February, nearly all of which were placed in the latter part of the month. The February figure does not break any records. The total of 29,291 compares, for example, with a total reported in March, 1923, of 35,514. On the other hand the figure is approximately equal to the orders reported in the combined months of January, February and April, 1923. But few orders were placed in 1923 in the months from May to November. The February, 1924, figure of 29,291 was actually 3½ times the total of all freight car orders reported in 1923 between May 1 and November 30. Passenger car and locomotive orders also were small in the summer and fall of 1923. The car and locomotive builders went through the latter months of the year with a constantly decreasing volume of unfilled orders on their books. They ended the year with only about enough orders to promise two months' production. The situation is thus seen to have changed rapidly. The present volume of unfilled orders on the builders' books is much more satisfactory. That, combined with the present volume of purchasing, offers great promise for the equipment builders for coming months. It is not without reason, therefore, that the analysts of business conditions have given the heavy purchases of railway equipment important mention in their analyses of present business conditions.

It is with marked satisfaction that one realizes the splendid condition the railways are in at this time to handle the large volume of traffic that may be offered to them in the coming months of 1924. The *Railway Age* has on a number of occasions expressed the view that the chief reason the railways were able to handle the record-breaking traffic of 1923 as efficiently and economically as they did was their unusually good equipment condition. The railways started 1923, it will be remembered, with 48,905 of their locomotives in serviceable condition, which figure they had raised by means of the acquisition of new motive power units and as a result of abnormal activity in the railway repair shops to 54,159 on October 1. They thus handled their October peak traffic with the largest number of serviceable locomotives that they had ever had, at least since the compilation of statistics showing such data was begun. On January 1, 1924, the number of serviceable locomotives totaled 54,031, approximately 5,100 more than on January 1, 1923. During 1923 the railways reduced their bad order cars approximately 60,000. Whereas the per cent of bad order cars on January 1, 1923, was 9.5, on January 1, 1924, it was 6.9.

These figures have appeared at various times in these columns, but they deserve to be repeated again for the reason that the favorable condition in which the railways started the year is not being maintained. In December, 1923, the railways cut their shop forces rather sharply—some believe too sharply. The result has been, at any rate, that the carriers are now falling behind insofar as their equipment condition is concerned. Thus, the number of serviceable locomotives has gradually declined since it reached its high point on October 1, 1923. The figure as of that date was 54,159. On February 1, 1924, the number of serviceable locomotives was 53,586. The reduction in number is not large enough to be serious, but the tendency is in the wrong direction nevertheless. The number of locomotives stored serviceable is declining because of the increased traffic. The stored locomotives on January 1, 1924, totaled 5,061; on January 15, 4,731, and on February 1, 4,116. The latter is certainly not a large number of locomotives to be stored in a period of comparative low business, such as February normally is.

The bad order car situation offers even less encouraging features than exist in the case of the trend in locomotive condition. What, for instance, has become of the goal of 5 per cent unserviceable freight cars which the A. R. A. 1923 transportation program set to be reached on October 1? Have the railways abandoned the high ideals which they set before themselves when they formulated their program last April? The lowest percentage that bad order cars have reached for the past three years was the figure of 6.5 per cent reported on December 15, 1923. It has since risen gradually to 6.9 per cent on January 1, to 7.0 on January 15 and to 7.1 per cent on February 1. A marked improvement, of course, from the 15 per cent reported early in 1922, but are the railways content to live on their 1923 laurels? The tendency upward is wrong and seems particularly so to anyone who gives a large share of the credit for 1923 operating excellence to improved equipment conditions.

The optimists expect big things for 1924 and conditions already have improved rather faster than even they had hoped a month or two ago. The railways should set themselves to be prepared for whatever may develop. Operating and mechanical officers have no right to rest on their oars. Railroading is a continuous job, and shippers' "grief" will not be answered by reference to the many wonderful performances that may have taken place in a previous period of efficient handling of record-breaking traffic volume such as existed during most of 1923.

Automobiles and Grade Crossings

THE ADDRESS OF A. H. Rudd of the Pennsylvania, before the New York Railroad Club, the address of C. E. Hill of the New York Central, reported in the *Railway Age* of February 23, and other recent utterances concerning highway crossing slaughters, are all alike in emphasizing the fact that it is the state that is primarily responsible for the discovery and application of a remedy for the trouble. From the standpoint of the public officer, the crossing problem is, or should be, only a part of the broader problem of general highway safety.

Why do railroad men spend so much time and thought on the crossing question? Simply because conditions are so distressing that no one, knowing the conditions, can refrain from doing whatever he can, whether it be a well-defined duty to do anything, or not. Crossing fatalities which are due in part to some error or neglect on the part of the railroad or its employees, and of which we hear so much in the court records, constitute, after all, but a small percentage of the whole record of losses, material and otherwise; the real problem of making crossings safe is far greater than any question discussed in these personal injury lawsuits.

It is important to get a correct view of the whole situation. When railroads were introduced, 90 years ago, with their moderate speeds, a whistle-blast 80 rods away, with a 36-lb. bell on the locomotive, afforded all necessary means of warning (though careless drivers got killed, even then). After a few years, increases in speeds of trains and in the volume of highway travel resulted in the employment of the flagman and the gate; and then the automatic bell. Today Mr. Rudd feels sure that the bell, which has served us for 40 years, is out of date, and that visual signals constitute the best kind of automatic warning.

But whatever means of warning may be used, it is to be

borne in mind that the railroad company is acting only as the servant of the state. From the state it had authority to build its railroad, as an instrument for serving the public; to establish crossings and to run passenger and freight trains at reasonable speeds. If a crossing must be guarded or be rebuilt, or changed in any way, or if train speeds must be limited, the state, primarily, must take action. Usually the state begins by calling upon the railroad to make some heavy expenditure; but this does not alter the principle. The people finally have to pay the cost. If they require the railroad to pay more than a fair share of a big expenditure, the main result of such unreasonableness is to shift the public burden to the future, perhaps putting it on the next generation.

As in various other elements of their relations to the public, the railroads have often done more than their share. In New York the railroads usually pay 50 per cent of the cost of changing grades at crossings. In Massachusetts for many years they paid 65 per cent. Railroads pay the whole cost of gates, flagmen and automatic warnings. In innumerable cases railroads have put on a flagman at a crossing that was not very much used simply because some dull person had been killed there, wholly by his own fault; this to satisfy public clamor. Public clamor has to be dealt with whether it is reasonable or unreasonable.

In proposing the flashing red-lights, simulating a swinging lantern (the arrangement described in the *Railway Age* of March 14, 1923, page 651) Mr. Rudd undoubtedly voices the most advanced railroad sentiment of today. Whether he will be so well supported in rejecting the bell remains to be seen. To make no use at all of the principle of an audible warning would be a bold move. The use of the locomotive whistle is almost universally required by statute; and the entire abolition of audible warnings except on the locomotive, would have an appearance of inconsistency. Even the shouting of a gate-tender or a flagman sometimes saves lives.

The public—that part of it which is thoughtful—has at last come to realize that the comprehensive remedy, the abolishing of all grade crossings, will take years of time and will call for untold millions of money. It is necessary also to realize that the next most thorough remedy, that of installing gates or flagmen or automatic warnings where they are needed, is also a question of time and money. The varied requirements of thousands of crossings cannot be dealt with in a month, or in a year. The statement was made in a recent court proceeding that the railroads of the country are buying 1,500 automatic crossing signals yearly. The railroad officer who claims that the railroads are doing their duty in this matter more intelligently and faithfully, as a whole, than are the municipal officers who have responsibilities in the premises, cannot be lightly contradicted.

And so we come back to the third phase; to the immediate problem; that of preventing people from killing themselves at crossings, *considering the crossings just as they are.* And from this viewpoint all of the essayists call for laws; for legislative regulation; that is, for police action. "Cross cautiously campaigns" are only palliatives. Campaigns conducted mainly by means of the printing press can hardly be dignified by the term "moral suasion," for it is so difficult to bring them, at the right time and with the right force, to the attention of the person who needs to be persuaded. In view of the unsatisfactory or partial or doubtful results, thus far, of all legislative attempts at curbing the automobile traffic evil on highways generally, it must be said that this single branch of that evil still belongs in the class of very knotty problems. But, knotty or otherwise, it is the problem of the lawmakers; and the relation of the railroad officer to it is that of a citizen, not of a specialist. As a specialist—that is, in his capacity as sponsor for the railroads' conduct or activities in the matter—the railroad officer, generally speaking, can give a good account of himself. Where is the legislative Moses who is going to lead us out of this wilderness?

Books and Special Articles of Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Agriculture and National Transportation, by James C. Davis. Address before Monday Club of the Norfolk-Portsmouth Chamber of Commerce. 12 p. Published by Western Railways' Committee on Public Relations, Chicago.

Annual Bulletin 1923. "Statistical digest of related economic and transportation factors applied to the movement of the country's production during the year 1923, and prior years. . . ." 40 p. Compiled and issued by the Car Service Division, American Railway Association, Washington, D. C.

Short and Long Distance Hauls, Interstate Commerce Law. Report by the Interstate Commerce Commission on administration of Section 4 of the Interstate Commerce Act. 68th Cong., 1st sess., Senate Document No. 50, 42 p. Published by the Government Printing Office, Washington, D. C.

Periodical Articles

The Commercial Possibilities of the Airplane, by Archibald Black and Donald R. Black. Discusses capital and equipment required, and exactly how and why air service will compete with fast passenger and freight train service (p. 135-137), Mechanical Engineering, March, 1924, p. 133-137.

German Railways Since the Armistice. Statistics and text comparing 1922 with 1913. Commerce Reports, March 3, 1924, p. 596.

Getting It Settled Out of Court, by Herbert Corey. How the Railroad Administration and the railroad companies settled a billion dollars in claims without lawsuits. Nation's Business, March, 1924, p. 26-28.

Helping to Solve the Nation's Transportation Problem, by Matthew W. Potts. Describes numerous ways in which motor vehicles can supplement rail transportation. Industry Illustrated, March, 1924, front cover, and p. 18-22, 42-48.

How Will the Recapture Clause Decision Affect Railway Securities? by Joseph M. Goldsmith. Magazine of Wall Street, February 16, 1924, p. 678-679, 727.

The Ore Ship of the Great Lakes; the Link Between the Iron Mines and the Smelter. "The Story of Steel—III." While the Duluth, Missabe & Northern, miscalled in this article, "Duluth, Missabe & Southern," is not featured in the title, its Proctor yards are described and illustrated, and its handling of ore traffic mentioned in some detail. Scientific American, March, 1924, p. 162-163, 316.

Origin—Destination Survey of a Large Port—What Goes on Within the Port-Terminal and the Important Function of the Terminal Railroad System, by J. Rowland Bibbins. " . . . the history, present status, organization and intraport operations of the great railroad system serving New Orleans, forming the rail-heads of five large railroad systems . . ." p. 35. World Ports, February, 1924, p. 33-53. Discussion, p. 53-72.

Replica of First Locomotive. Stevenson's "Rocket" Rebuilt for Movies. Run by Auto Motor. " . . . The technical director who built the locomotive estimated that the cost of the 'Rocket's' construction and the building of special lengths of narrow gage track upon which it ran, at about $20,000." Science and Invention, March, 1924, p. 1097.

The West as I Saw Her, by Shaw Desmond. A visiting Irishman comments on western Americans and railroads, chiefly railroads. Scribner's, March, 1924, p. 253-262.

Letters to the Editor

[The Railway Age *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]*

The Annual Total of Automobile Fatalities

New York City.

To the Editor:

I have read in the *Railway Age* of February 23, page 462, the abstract of the address given by me at Michigan University on February 12, and I appreciate your attention to this very important subject. You are in error, however, in saying that I made no mention of automobile casualties at places other than railroad crossings. On page 15, I said, " * * * considering travel by automobiles the death rate in a period of five years increased 600 per cent; and in 1922 there was an average of 38 fatalities per day. It is true that the number of fatalities per million cars registered shows a decrease in 1922 over 1917; but if the reverse were true we should indeed have sufficient tragedies to occupy the entire space of the public press. If the same ratio of increase obtains in 1924 as during the last few years, we may expect a toll of 46 deaths per day from this cause alone."

And if the ratio of increase recorded for 1923 shall obtain in 1924, we may expect in the current year no less than 11,500 fatalities, in connection with the operation of automobiles, exclusive of those occasioned by collisions with trains at railroad crossings. Chas. E. Hill.

Railroads and Federal Taxes

Newark, N. J.

To the Editor:

Now that discussion of income tax legislation in Congress has quieted down somewhat, perhaps the time is not inopportune to raise a question about the railroads' attitude on the problem.

Many railroads in statements and posters and on dining car menus advocated the Mellon program for the reduction of high surtaxes, doubtless with the idea that somehow or other the passage of this tax bill would help them in some indirect way. But how about a little direct relief in the form of tax reduction for the railways? Why did they not say something about that?

In 1921 when the excess profits tax on corporations was repealed, the flat corporation tax rate was raised from 10 per cent to 12½ per cent. The railroads, not having earned enough to come under the excess profits provisions, had their taxes raised at the time when practically all other taxes were being lowered. The Mellon plan carried no provision for direct tax relief to the railroads. Rather than giving unqualified support to the Mellon or any other plan for tax reduction not affecting the railroads directly would it not, perhaps, have been more seemly for them to have called attention to the fact that *the railroads form the only considerable group either of persons or corporations which since the war have not only had no tax relief from the government but have actually had their rate raised?* E. P. T.

Grade Crossing Puzzles Yet to be Solved

Plattsburg, N. Y.

To the Editor:

Here are a few platitudes from Plattsburg. Those of your readers who heard Mr. Rudd and saw his reels at the New York Railroad Club the other night will, like myself, have a good many conflicting emotions in regard to the grade crossing problem; and in the confusion which results from contemplation of such disturbing perplexities, they will probably be glad to look for a moment on the calmer side of the situation.

Mr. Rudd estimates that three per cent of motorists are reckless; did it ever occur to him that probably these three per cent are incurable? Or, if you could reform them, or kill them off, a new three per cent would arise to take their places. Look at recklessness in other lines of human activity; it will be seen that 97 per cent of correct behavior is a very good percentage. The careful crossing campaign and other safety movements become very tiresome to the people (97 per cent of the whole) who do not need such elementary instruction. Examination of motorists to guard against color-blindness, heart disease, deafness, etc., would be well enough if not so costly and so liable to be often done by incompetent or lazy examiners; but the reckless or pig-headed motorists would slip through the net.

The fundamental inconstancy of the human mind is responsible for a good deal of this crossing recklessness. A certain man is sane and sober at one time but unreliable at another.

A considerable percentage of the locomotive engineers who get into trouble are men who would never have been detected by any amount of examinations; that is, they are what we call good men; all right most of the time, but liable to inexplicable lapses. Mr. Rudd himself, approaching a crossing, stopped his auto; but, the next time he came to that crossing did not think to stop.

Don't try to accomplish the impossible.

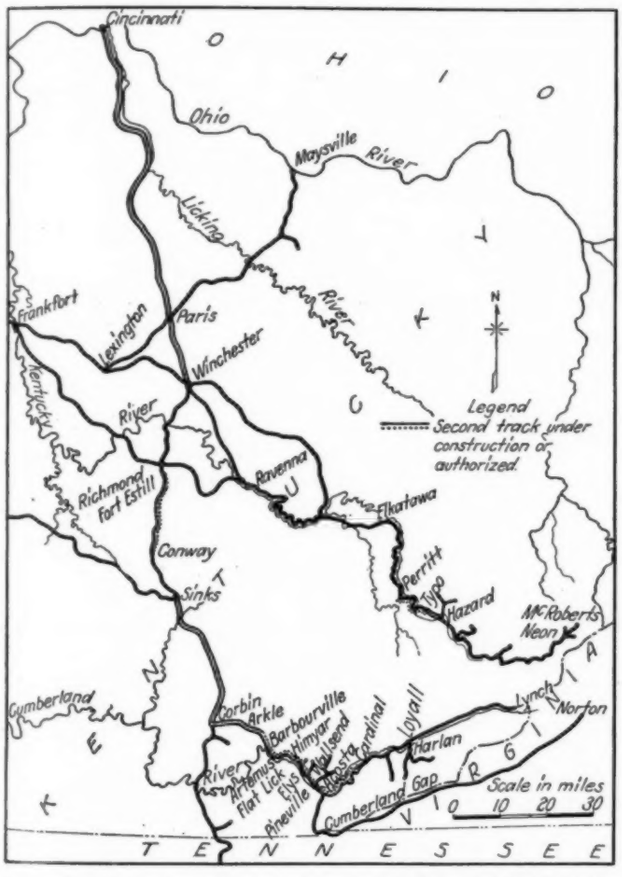
When you consider all of these causes which cannot be reached it will be seen that striving after perfection is a waste of energy. If the railroads and the towns co-operate to provide uniform signs, gates, lights and other protective fixtures and rules, they will have done their duty. To prevent the three per cent from killing themselves and wrecking express trains you will have to put a crook or a hump in the highway, so as to make it absolutely impossible for an automobile to approach the crossing at other than very low speed. You cannot make them stop their cars before crossing, even then, unless you arrest and fine hundreds of them in every city every year. To do this you would have to greatly improve the courts and the police departments; for, as we see in connection with motorists' offenses at other places than railway crossings, the courts are too lenient, the police are too busy or there are too few of them and the city councils are too stingy with appropriations for policemen's salaries.

I have called these thoughts platitudes because they are known to everybody. Why do we continue to burden our linotypers with ponderous printed discussions of multitudinous details while yet omitting to recognize these obvious primary elements of this very practical side of the question? To effect any change in the present state of things you have got to go to a dozen State legislatures and secure the passage of some very restrictive laws; and, having done that, you will probably find that the laws are a constant inconvenience to the millions of careful motorists, while yet they are not rigid enough to prevent the heedless driver from continuing his heedless course. N. Hero.

L. & N. Adds to Facilities in Eastern Kentucky

Provides Additional Second Track on Three Divisions to Meet Demands of Growing Coal Traffic

TO MEET THE REQUIREMENTS of the constantly growing coal traffic originating on its Cumberland Valley and Eastern Kentucky divisions, the Louisville & Nashville is pursuing a well defined program of extensive improvements embracing new lines, second track, grade revision and terminal facilities. This work has been carried on progressively from year to year as conditions demand and during the past 22 years more than $50,000,000 had been expended to this end. During the past year work has been in



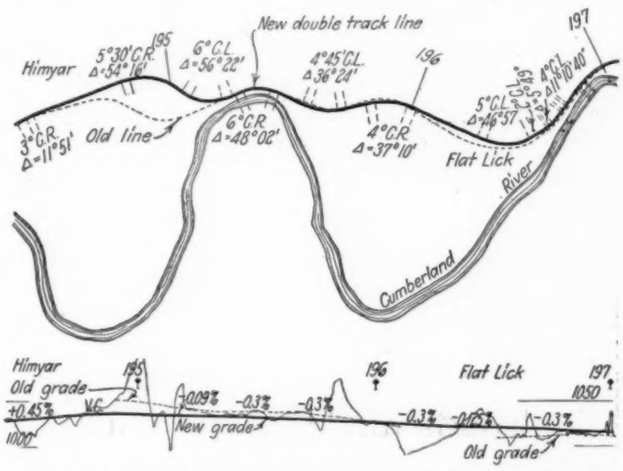
Map Showing the Lines of the Louisville & Nashville in Eastern Kentucky

progress on 17 miles of second track and grade improvement on the Cumberland Valley division and 15.6 miles of second track on the Eastern Kentucky division, involving a total expenditure of $3,396,540. In addition, work has been authorized and started on the Cumberland Valley division for a distance of 19.35 miles at an estimated cost of $1,213,221 and for 18.2 miles on the Kentucky division at a cost of $1,844,013 to facilitate the movement of Cumberland Valley division coal northward into Cincinnati.

The Cumberland Valley and the Eastern Kentucky divisions of the Louisville & Nashville comprise two important arms of the system, extending in a generally easterly direction from the Kentucky division which constitutes the more easterly of the two main north and south trunk lines of the railroad and forms the main through route from Atlanta, Ga., to Cincinnati, Ohio. The Cumberland Valley division, which extends into southeastern Kentucky and Virginia, connects with the Kentucky division at Corbin, while the Eastern Kentucky division, which lies farther north, connects with the Kentucky division at Richmond and Winchester. Both lines serve important coal fields and originate approximately 65 per cent of the Louisville & Nashville coal traffic.

Cumberland Valley Division Serves Important Coal Field

The Cumberland Valley division comprises a main line extending from Corbin for a distance of 118 miles to Norton, Va., with a 62-mile branch extending from Acosta, Ky., to Lynch. Most of the coal on this division originates in the vicinity of Harlan, Ky., and is assembled in a yard at Loyall. In addition, some 175 cars of coal originate daily at the



Grade and Line Change on the Cumberland Valley Division Between Flat Lick and Himyar

United States Coal & Coke Company's mines at Lynch and at the Wisconsin Steel Company's mines at Benham. The total traffic originating on the Cumberland Valley division amounts to about 900 cars daily which is assembled in trains at Corbin for movement north to Louisville and Cincinnati or south to Knoxville and Atlanta. The total movement of coal into Corbin from the Cumberland Valley division in the six months from March to August, 1923, inclusive, was 112,813 carloads, of which 69 per cent moved to connections at Louisville and Cincinnati.

The movement of the coal on the Cumberland Valley division is favored by a water grade location in the valley of the Cumberland river and its tributaries as far as Barbourville, a distance over which it was possible to provide a line with grades in most places not exceeding 0.3 per cent opposing the direction of the loaded movement and not in excess of 0.5 per cent opposing the empty movement. However, short stretches, particularly between Pineville and Baileys, involve grades of 0.75 per cent opposing the direction of the coal movement while north of Baileys, where the line leaves the Cumberland valley and climbs through a rough country to reach an interior plateau in its approach to Corbin, the original location required a grade of 1.25 per cent for a distance

of 2.7 miles south of Arkle. Until two years ago the lines on this division were all single track with the exception of the last eight miles into Corbin.

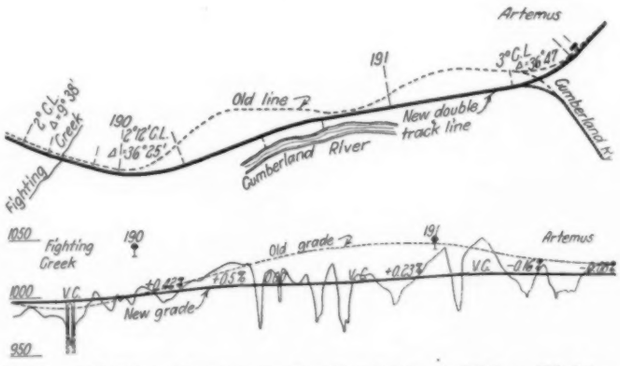
With these physical conditions, 151-ton Mikado locomotives were rated at 3,000 tons, with helper service on the 1.25 per cent grade. Because this operating arrangement interfered seriously with the proper handling of the traffic, work was undertaken in 1920 on the construction of a new line from Baileys to Arkle on a 0.65 per cent grade at a cost of $1,300,000 to serve as an up-hill line while retaining the old line with the 1.25 per cent grade for the down-hill movement. This afforded a 5.4-mile extension of the second track and eliminated the pusher service. During the past year work has been in progress on the construction of second track from Baileys to Wallsend (Pineville) with changes of line and grade that will eliminate all grades between those points in excess of 0.3 per cent opposing the loaded movement so that with the completion of this work and the re-establishment of helper service between Baileys and Arkle, the tonnage rating of locomotives can be increased to 4,550 tons. In addition to this improvement authority was recently granted for the extension of second track from Acosta to Cardinal on the Kentucky and Virginia branch, a distance of 19.35 miles, and work is now in progress on a portion of this work. During the past 22 years the company has expended about $14,000,000 for new mine spurs, grade revision, double track and yard facilities for the purpose of expanding the transportation capacity of this division.

Eastern Kentucky Division is Favorably Located

The Eastern Kentucky division follows the north fork of the Kentucky river to its headwaters at McRoberts close to the Kentucky-Virginia boundary line. It traverses a large coal field for nearly its entire length which is most highly developed in the vicinity of Hazard, in Perry county, and also in the vicinity of McRoberts. Cars from mines at the upper end of the line are made up into trains at Neon yard, while those for mines between Neon and Hazard are made up into trains in the Hazard yard. Crawford yard just north of Hazard takes care of cars from mines immediately north of Hazard and from the First Creek branch. The normal daily coal movement on this line is about 650 cars and totaled 90,098 cars for the six months from March to August, 1923, inclusive. The coal originating on this line is all delivered at Ravenna yards, whence it moves northward to Cincinnati and westward to Louisville.

Steam Shovel in the Summit Cut Near Flat Lick

The Eastern Kentucky division is built on a water grade with the traffic from McRoberts to Elkatawa, where a detour away from the river for a distance of 10 miles introduces an adverse grade of 1.0 per cent. But, by providing helper service for this grade, coal trains are rated at 3,400 tons (48 to 50 cars) from assembly yards to the classification yard at Ravenna. Here trains are made up for delivery to other divisions at Winchester and Lexington where they are usually forwarded without breakup. The rating between Ravenna and Winchester is 3,600 to 3,850 tons for an opposing grade of 0.4 per cent, but in order to take advantage of a 0.3 per cent grade on the Kentucky division between Winchester and DeCoursey yard (Cincinnati), trains are often rated on the basis of the 0.3 per cent grade, using a light helper to move the train to Winchester so as to avoid changing tonnage at that point.



Grade and Line Change on the Cumberland Valley Division North of Artemus

While the grades on the Eastern Kentucky division are, for the most part, favorable to the movement of traffic this is not the case with respect to alinement. Following the deep narrow valley of the river, the line has heavy curvature and passes through numerous tunnels. During the past 15 years the railroad has spent $19,000,000 in adding new lines, constructing yards and in increasing trackage for the development and movement of the coal traffic originating in this field. The work most recently completed on this division comprises the construction of second track for a distance of five miles northward from Hazard to Typo and the construction of a yard at Crawford for the distribution of empty and the assembly of loaded cars. This improvement is now being extended by the construction of second track for the distance of 12 miles northward from Typo of Perritt.

The Kentucky Division

Most of the coal moves north over the Kentucky division, which comprises the main stem of the system from Corbin to Cincinnati. In the 90-mile district from Corbin to Winchester engines are rated for ruling grades of 0.65 northbound and 0.85 per cent southbound, but for the distance of 58 miles from Livingston to Winchester where grades are in excess of the above, helper engines are required to handle the northbound trains. In the district from Winchester to DeCoursey yard the ruling grades are 0.3 per cent northbound and 0.4 per cent southbound.

During the past 15 years, $15,000,000 has been expended on improvements on this division, including the construction of a large hump yard at DeCoursey for classifying the bridge deliveries to connections at Cincinnati and the construction of double track for the entire distance from Winchester to DeCoursey, and for the 35 miles between Corbin and Sinks, where a junction is made with the short line to Louisville. Additional second track for the 18.32 miles between Conway and Ft. Estill, authorized late during the past summer, will

increase the double track between Corbin and Winchester to 53.3 miles while grade reduction carried out in connection therewith will eliminate all of the helper service except for a distance of about 10 miles extending southward from Winchester.

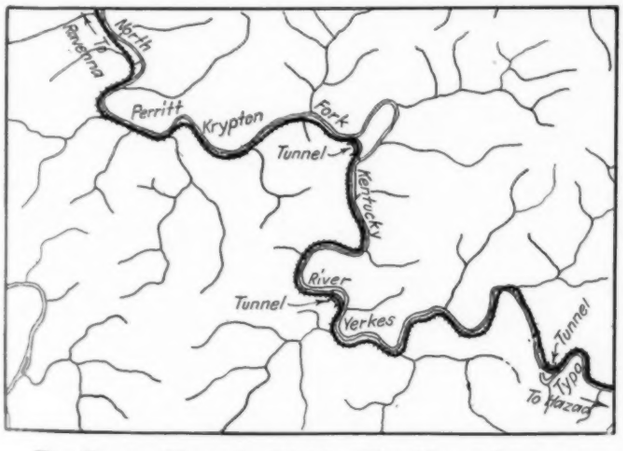
Construction Work on the Cumberland Valley Division

For most of the distance between Wallsend and Baileys on the Cumberland valley division the line follows the right

North of Artemus the New Line Occupies a Bench in the Face of the Bluff Close to the Cumberland River

bank of the Cumberland river on a water grade. Exceptions to this rule are found in certain stretches where wide detours of the winding river were avoided by crossing over low shoulders which lie at the foot of the hills which form the sides of the valley. These cut-offs introduced considerable adverse grade of as heavy a rate as 0.75 per cent.

The second track is being constructed alongside the old



The Eastern Kentucky Division Has Heavy Curvature

one except where conditions imposed in effecting reductions of grade made it desirable to introduce changes of line. Where the changes of grade were moderate and no change of line was made the roadbed for the second track was cut to the new grade, loading the material on cars occupying the operated line. After traffic could be transferred to the track laid on the new grade, the original track was taken up and the roadbed lowered to correspond.

One of the heaviest changes of line and grade was made between Elys and Himyar, a distance of about three miles, which resulted in a reduction of 17 ft. in the summit elevation. This work involved 200,000 cu. yd. of grading, mostly in rock, of which 94,000 cu. yd. was in a summit cut having a maximum depth of 78 ft. The material in the cut was of solid sandstone except for a cover of from two to eight feet of earth.

Another interesting change of line was made in a distance of 1½ miles north from Artemus where the old line was located back from the river on a comparatively level bench which offered a favorable location for the line but introduced considerable rise and fall and adverse grade. To overcome this condition a new double-track line was built on a location supported at an elevation about 32 ft. below the old track in the face of the bluff formed where this bench breaks off into the river. West of this section a considerable change is made for a distance of a mile on a line following the old location but offset a sufficient distance to permit the raising of an embankment to the amount of 8 ft. and the lowering of a cut a maximum depth of 12 ft.

Another change of line was made between Heidrick and Baileys where the old line is supported along the west side of the Richland Creek valley on a considerable detour to avoid the low ground in the bottom of the valley. Here a new single-track line for north bound traffic was built directly

Gasoline Operated Tractor Handled Narrow-Gage Dump Cars at Approach to the Campbell Tunnel on the Eastern Kentucky Division

across the bottoms for a distance of 9,430 ft., to obtain a saving in distance of 1,682 ft. The situation here did not permit the balancing of quantities, there being 260,000 cu. yd. of embankment and only 66,789 cu. yd. of excavation in two short cuts. The embankment quantities occurred principally in two long fills averaging 20 ft. in height, which were made from borrow with a dragline machine.

The total grading on the Cumberland valley division work amounted to 887,000 cu. yd. of embankment, 540,000 cu. yd. of excavation and 285,000 cu. yd. of borrow. The excavation was largely in rock, a sandstone mixed with considerable shale, which occurred in thin laminations.

No Changes of Line on the Eastern Kentucky Division

The alinement of the Eastern Kentucky division along the north fork of the Kentucky river is exceedingly crooked but the steep sides of the valley preclude any but minor changes in alinement in connection with the construction of second track. For a large part of the distance the roadbed

for the old line comprises a shelf cut into the side of the valley at an elevation of 20 to 40 ft. above the stream bed. The new track was located inside or outside of the old line, depending on the relative feasibility of widening the cut on the up-hill side or of holding an embankment without encroaching on the waterway of the river. The material encountered consisted mostly of ledges of shale and sandstone with considerable talus, which is largely earth, disintegrated shale and slate. The grading totalled about 700,000 cu. yd. As in the case of the work on the Cumberland valley division the excavation was handled largely with steam shovels, loading cars occupying the operated track.

The completion of the work between Perritt and Typo is contingent primarily on the driving of three short tunnels parallel to the existing tunnels on the old line, the new tunnels being offset a sufficient distance from the old ones to avoid the danger of disturbing them. The new tunnels vary from 525 ft. to 900 ft. in length and all three are on curves ranging from 7 deg. 21 min. to 8 deg. The approach cuts will require a total of 150,000 cu. yd. of excavation, mostly in rock. One of these approaches, involving 35,000 cu. yd of excavation, introduced considerable difficulty because it required the removal of a rock face 74 ft. high that cleared the operated track by only 12 ft. However, by skillful work in blasting, this rock was shot down with a minimum disturbance of train movements.

The tunnels are being driven by the top heading and bench method, timbering being used where the condition of the rock requires. The bench is being taken out with a small air-operated revolving shovel.

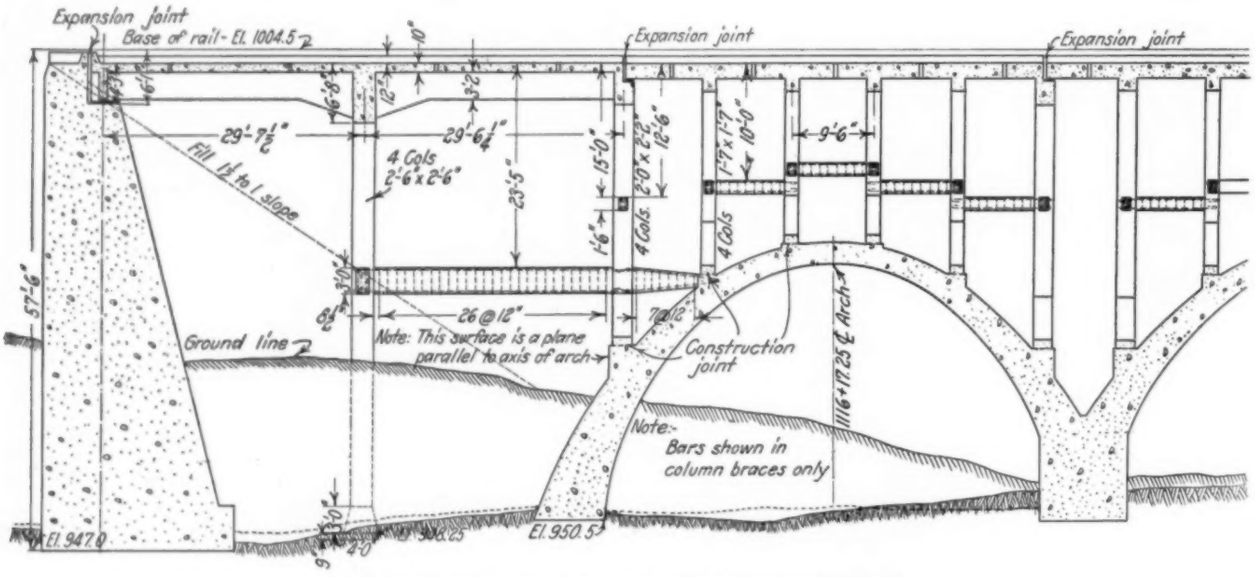
Interesting Bridge Work

Secondly track work on the Cumberland Valley and Eastern Kentucky divisions required the building of several important bridge structures, of which the most interesting is a double arch bridge over Stinking creek on the Cumberland Valley division, comprising two 50-ft. parabolic arches supporting a reinforced concrete trestle having a total length, including approaches, of 200 ft. and a height of 50 ft. above the bed of the stream. This required 1,300 cu. yd. of concrete. The work on this division also includes a 50-ft. filled spandrel arch with counterfort spandrel walls aggregating 850 cu. yd. of concrete as well as one 50-ft. and one 40-ft. arch in the dragline fills between Heidrick and Baileys, totaling 2,200 cu. yd. of concrete. There are a number of concrete box culverts and several highway underpasses of both arch and flat top construction. One of these, near Himyar, is of the strutted wing or false parapet type, as shown in one of the photographs.

On the Eastern Kentucky division the most important

Strutted Wing Highway Undercrossings Near Himyar on the Cumberland Valley Division

structure is a skew bridge crossing the North fork of the Kentucky river on an eight-degree curve, the present project involving an extension of the existing piers and provision for a new independent superstructure for the second track, consisting of three truss spans approximately 130 ft. long with a 79-ft. girder span at one end. To give greater headroom the new spans are being placed five feet higher than the old ones which will later be raised to give the same clearance. Special pains were taken in the substructure work on this bridge to insure dense, impervious concrete. To facilitate the handling of concrete of a minimum water content a runway was cantilevered from the sides of the old spans so that the concrete could be delivered to the piers and abutments in buggies.



Half Sectional Elevation of the Stinking Creek Bridge

The construction work now in progress on the Louisville & Nashville is distinctive in that a large part of it is being conducted by company forces. The plan is of particular

advantage in doing work in close quarters where it is essential to use the operated track in the loading and hauling of excavated material.

In the course of the past 10 years during which the railroad has done much of its own construction, a good construction organization has been built up and an adequate complement of effective construction equipment has been acquired. Special pains have also been taken to provide high class outfit cars and to maintain a high standard in the food served to the men in its boarding cars.

At present, the main items in the construction plants include one Marion 60 steam shovel, one Marion 70 steam shovel, three 70C Bucyrus shovels, five Jordan spreaders, two Erie ditchers in addition to ditchers requisitioned from time to time from the maintenance of way department and an adequate supply of well, steam and air drills. To facilitate the operation of air drills each steam shovel is equipped with two 9-in. by 9-in. Westinghouse air pumps with an air receiver. Close co-operation is maintained with the operating department in the operation of the construction equipment. Steam shovels are supplied with water and coal from the tenders of the work train engines. Whenever the work is so located as to require work trains to run a long distance for water, temporary water stations are provided. The construction equipment is maintained by the mechanical department.

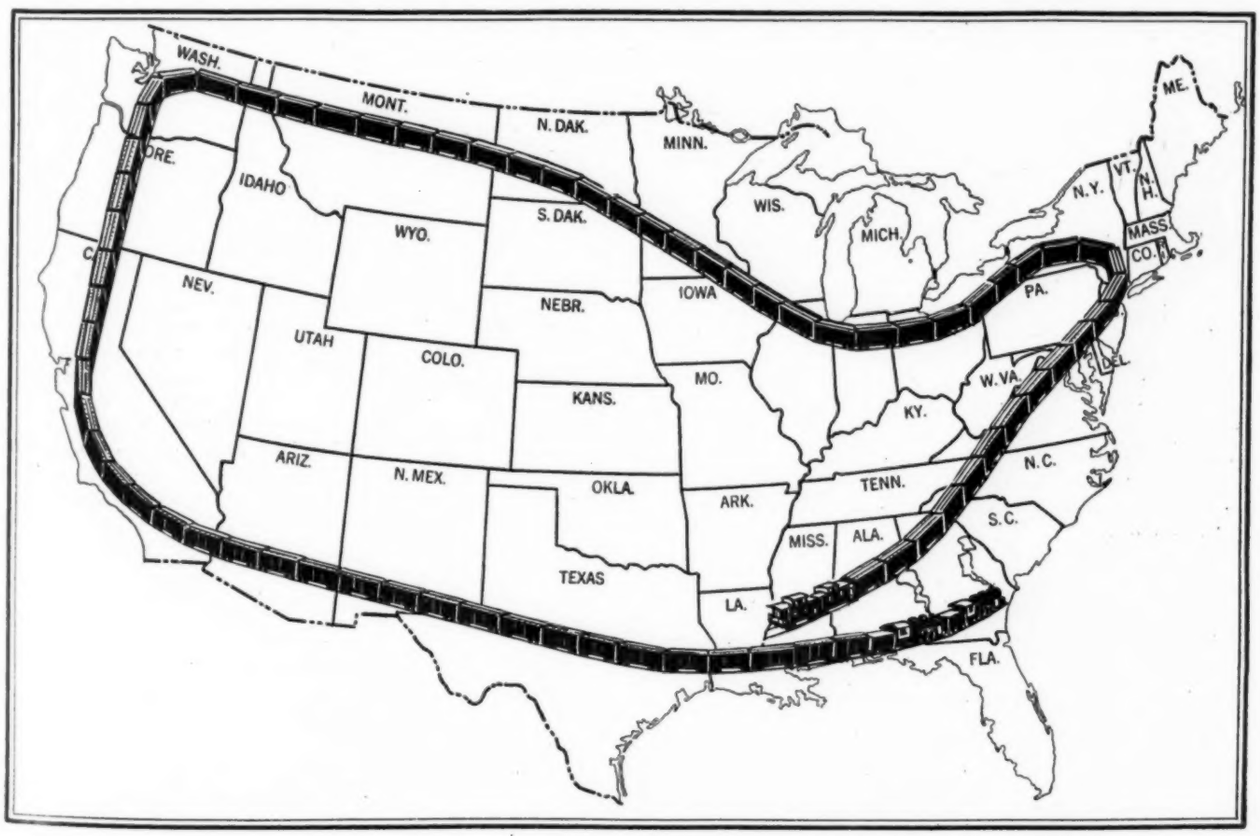
Each project of construction work is under the direction of a resident engineer, assisted by a construction supervisor who has direct supervision of the construction forces. Track changes in the operated lines are handled by a supervisor of track in the maintenance of way department. While it is, of course, impossible to keep the organization intact during times when little work is in progress, a nucleus of an organization is retained.

On large projects or even on portions of projects that do not interfere appreciably with the operated line the work is done under contract. Thus, in the work on the Cumberland Valley division, the change of line between Flat Lick and Himyar and for the six miles between Artemus and Baileys was handled under contract by the Nichols Contracting Company of Atlanta, Ga., the bridge work was handled for that company by Davis & Graham of Pineville, Ky., and P. E. Millsop of Birmingham, Ala. On the Eastern Kentucky division the tunnel work and some of the approach cuts were awarded to the Rinehart and Dennis Company of Charlottesville, Va. The improvement work now in progress on the Louisville & Nashville, described above, is under the direct supervision of W. H. Courtenay, chief engineer, and G. R. Smiley, chief engineer construction. J. M. Parker is resident engineer on the Cumberland division, J. W. Hoyt is resident engineer on the Eastern Kentucky division and W. S. Morton is resident engineer on the Kentucky division.

What It Means to Load One Million Cars With Freight

FOR THE 34 WEEKS from April 29, 1923, to December 22, inclusive, the railways of the United States loaded and hauled to destination an average of one million cars of revenue freight each week. George G. Boardman, secretary of the Western Railways Committee on Public Relations, has originated a striking method of illustrating how large this volume of traffic is by assuming that these cars could all be made up into one train and that a locomotive and a caboose would be added for each 50 cars.

This movement would thus call for 20,000 locomotives and 20,000 cabooses. If the 20,000 locomotives were placed at



A Train of a Million Cars

the head of the train with the forward locomotive at Savannah, Ga., and the train followed the route of the Seaboard Air Line through Jacksonville, Fla., to River Junction, these locomotives would extend continuously for 311 miles, or to within 35 miles of River Junction. If the one million cars were placed behind these locomotives they would extend through River Junction over the line of the Louisville & Nashville to New Orleans; thence over the line of the Southern Pacific through El Paso, Tex., Los Angeles and San Francisco, Cal., to Portland, Ore.; thence over the line of the Northern Pacific to Seattle, the Chicago, Milwaukee & St. Paul to Spokane and the Great Northern to St. Paul; thence to Chicago over the Chicago & North Western; on to New York over the New York Central; to Washington over the Pennsylvania and over the Southern through Atlanta and Birmingham to a point 96 miles west of the latter point. If the 20,000 cabooses were then added to this train it would extend 132 miles further or to a point 10 miles north of Hattiesburg, Miss. In other words, the total length of the train would be 8,587 miles. This represents the work done every week for many weeks in 1923 by the railways.

Modified Procedure in Rate Cases Before I. C. C.

WASHINGTON, D. C.

AFTER AN EXPERIMENT extending through about a year, under the direction of Commissioner Meyer of the Interstate Commerce Commission, with a form of shortened procedure by which evidence is brought before the commission in simple cases in the form of memoranda instead of by oral hearing, Commissioner Meyer is now conducting further experiments with a form of modified procedure designed to reduce the amount of oral testimony required in a less simple intermediate class of cases. The shortened procedure was adopted by the commission as a part of its regular procedure in December, 1923, and generally speaking it has received the approval of shippers and carriers alike. The new form of "modified procedure" is outlined in a letter written by Commissioner Meyer to the parties in certain cases, asking whether it will be agreeable to them to apply it. In the letter he says:

"The shortened procedure has been applied only to the class of relatively simple cases in which the issues can generally be stated in brief memorandums and in which the oral hearing is not indispensable. The 'modified procedure' which I am about to suggest is directed towards another class of cases in which it is assumed that an oral hearing is necessary. During the early stages of this experiment, which I am conducting by authority of the commission, there will be selected a class of intermediate cases which do not present the complications and entanglements of many of our larger cases but which are too complicated in the present state of the development of our methods to be conducted under the shortened procedure.

"The modified procedure has already been set on foot by consent of all the interested parties in a limited number of cases. The purpose of this communication is to invite the co-operation of the parties addressed in the application of the modified procedure to the above docket number. As the initial step in this experiment the following order of procedure is suggested in this case:

"1. The complainant will submit to the commission and to counsel in charge of the defense, and to any interveners, a full statement of the facts upon which it relies in support of the allegations contained in the complaint, together with copies of all the exhibits which are to be introduced at the hearing. Defendants should send complainant the name or names of counsel in charge of the defense.

"2. On the receipt of complainant's statement and exhibits the defendant, or defendants, will likewise prepare and submit to the commission, complainant and intervener, a statement of fact and exhibits which it believes necessary to meet the allegations of the complaint.

"3. Any intending intervener should promptly file petition of intervention and should not wait to file such petition at the hearing itself. Thereafter it should furnish complainants, defendants and the commission with a statement of the facts and exhibits which it believes necessary to support the complainant's statement or to meet the allegations of the complaint, as the case may be.

"4. The statements of fact should be drawn up in narrative form regardless of the number of witnesses it would require to establish the facts enumerated. In other words, the statement of fact should be a composite of the testimony of all the witnesses which any party might wish to present at a complete oral hearing. The facts must be sworn to by one having knowledge thereof.

"5. After careful examination of everything that has been submitted, an examiner will formulate the issues and prepare a memorandum which will enumerate (a) points upon which the parties are agreed, (b) points regarding which they agree only in part, and (c) points regarding which the parties are not agreed.

"6. This memorandum will be submitted to the parties prior to the hearing.

"7. Before the hearing is formally opened the examiner will discuss the memorandum with the parties with a view of stipulating in the record an agreed statement of fact as far as agreement has been developed or may be developed during such discussion.

"8. The parties will then offer testimony upon those points, if any, concerning which agreement has not been reached, and the case will proceed under the regular order.

"This enumeration is made in the hope that it will be sufficient to convey to the parties a fairly definite understanding of what I am attempting to accomplish through the modified procedure. Additional features will be considered as the experience with this and other cases may suggest. I shall be glad to avail myself of all suggestions which parties in the case may be kind enough to submit, and everybody is hereby invited to offer suggestions.

"All parties who have had experience in rate cases know that many pages of transcript are not helpful; and they cost money. Large numbers of exhibits are literally thrown into the record without opportunity for previous study and with the necessary consequence of requests for continuance in the hearing. Cross examination of witnesses is frequently wasteful and not always conducive to a better understanding of the issues. Unwieldy records are a burden to counsel when they prepare briefs, and they are likewise adding to the burdens of our examiners and the members of the commission. The opportunity to study carefully thought out and supported issues in advance of the hearing, such as an exchange of memorandums and exhibits will make possible, will tend to reduce materially the size of the record and facilitate orderly presentation and full understanding on the part of all concerned."

The memorandum referred to regarding the status of the shortened procedure docket is as follows:

Number of Cases.			
Suggested for handling under the shortened procedure either by the commission or by the parties			334
Removed from the shortened procedure docket because:			
Hearings granted		59	
Transferred to special docket		31	
Dismissed on request of parties		9	
			99
Remaining on docket.			
Held in suspense pending decisions in other cases		11	
In various stages short of assignment for writing report		134	
In which all memoranda have been submitted.			
Assigned for writing proposed report	29		
Proposed report served	12		
Assigned for preparing final report	13		
Final report prepared	3		
Decided	33	90	235

New Co-operative Developments on the B. & O.

Program Started at the Glenwood Shops a Year Ago Now Extended to All Shops on System

FURTHER significant progress has been made during the last two weeks in the program of co-operation between the federated shop craft unions and the management of the Baltimore & Ohio. The first step in this program was taken over a year ago at the Baltimore & Ohio's Glenwood shops in the Pittsburgh district. Development has proceeded intensively at Glenwood and generally over the entire system ever since. A definite technique for the practical promotion of co-operation was thus worked out, at an important shop point, while at the same time, through conference, discussion and education the ground was prepared all over the railroad, so that when the time came for taking the first intensive step locally at each point, conditions would be ripe.

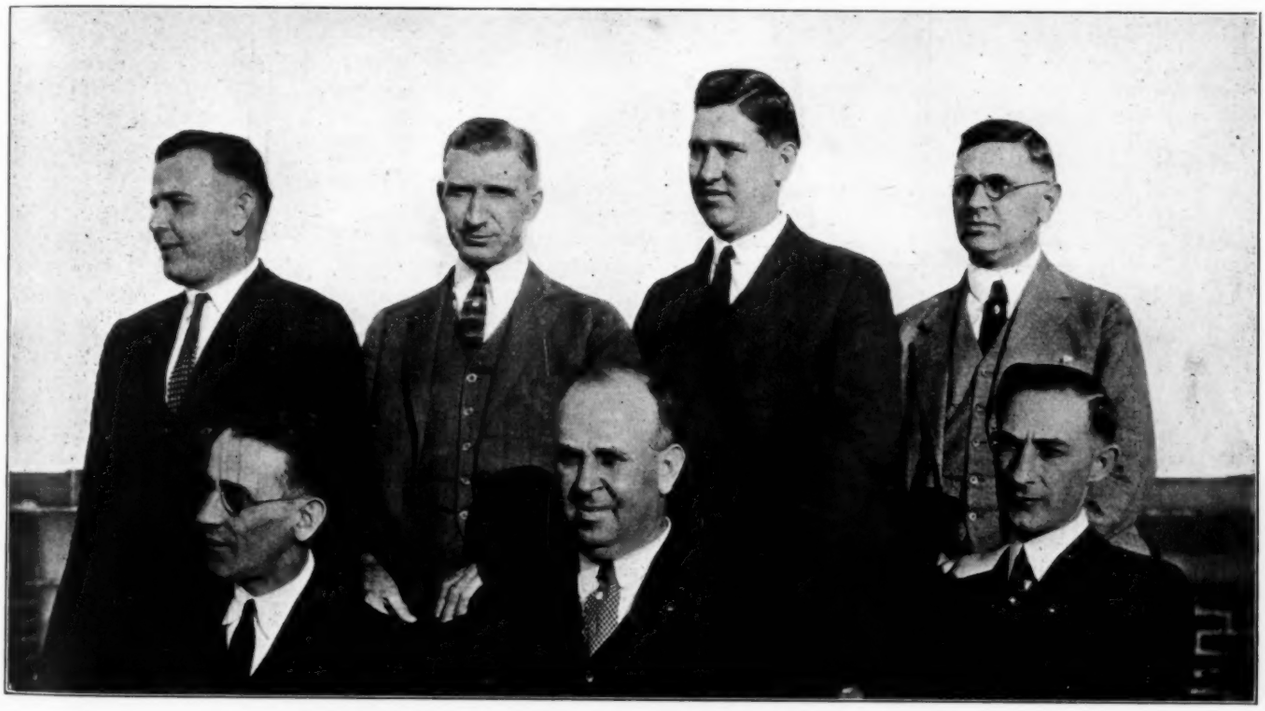
In the February 16 issue of the *Railway Age*, page 607, attention was called to the fact that the regular A. F. of L. shop craft unions, after observing the developments on the Baltimore & Ohio, had formally adopted the policy of co-operation and retained Captain O. S. Beyer, Jr., as consulting engineer, to help develop it in detail on those railroads desirous of the shop crafts' help in this direction. The latest developments on the Baltimore & Ohio are in general keeping with the elements of the co-operative program as referred to in the issue of the *Railway Age* mentioned above.

Fundamental Principles of Co-operation

A "memorandum agreement" or "understanding" has been worked out, extending in detail the Glenwood co-operative relations to all important mechanical department points on the system. This understanding was agreed to at a conference between the executive committee of Baltimore & Ohio System Federation No. 30, comprised of its president, William J. McGee, and the general chairman of each of the affiliated crafts, together with the management of the railroad.

Briefly, the agreement recognizes three fundamental principles as essential to the success of co-operation. These are as follows:

1. The recognition of the standard shop craft unions as organized and affiliated with one another on the Baltimore & Ohio as necessary, constructive and helpful agencies in the running of the shops, repair yards and roundhouses.
2. The equitable sharing between shopmen and railroad of the gains of co-operation.
3. The stabilization of employment.



Executive Board, Baltimore & Ohio System Federation No. 30

Top row, left to right—E. M. Gerrity, International Brotherhood of Boilermakers, Iron Ship Builders and Helpers; C. W. Murphy, Brotherhood of Railway Carmen of America; John J. Wall, Amalgamated Sheet Metal Workers International Alliance; C. N. Fullerton, International Association of Machinists. Bottom row, left to right—William J. McGee, president, Baltimore & Ohio Subsidiary Lines System Federation No. 30; T. L. Dugan, Vice-president, Baltimore & Ohio Subsidiary Lines System Federation No. 30; K. W. Green, International Brotherhood of Electrical Workers.

Joint Co-operative Meetings

The first principle above, in accordance with the agreement, is given real meaning through the organization, effective March 5, 1924, of bi-weekly joint co-operative meetings at all important points on the system. The local management will be represented by the local officer in charge, *i.e.*, superintendent of shops or master mechanic and his staff. Included in his staff, among others, will be the local storekeeper and the local chief of the Shop Practices Bureau, if one is functioning at the point in question. It was considered essential to the success of co-operation that the railroad supply service be "in on" these bi-weekly conferences,

for, as is well known, an efficient material supply service is indispensable to a well managed shop.

The establishment of a fixed Shop Practices Bureau at each major shop point, such as Mt. Clare, Cumberland and Glenwood, together with a traveling shop practice service for the minor shop points, such as Newark, Ohio; Washington and Garrett, Ind., is also a feature which has grown out of the co-operative program. By means of these bureaus and services the railroad management is enabled promptly and effectively to put the useful, constructive and practical ideas and suggestions emerging from the joint co-operative meetings into practice. For the management to be ready to do this when interest in improved service is rife, is considered absolutely essential for the sustaining of this interest in improved service.

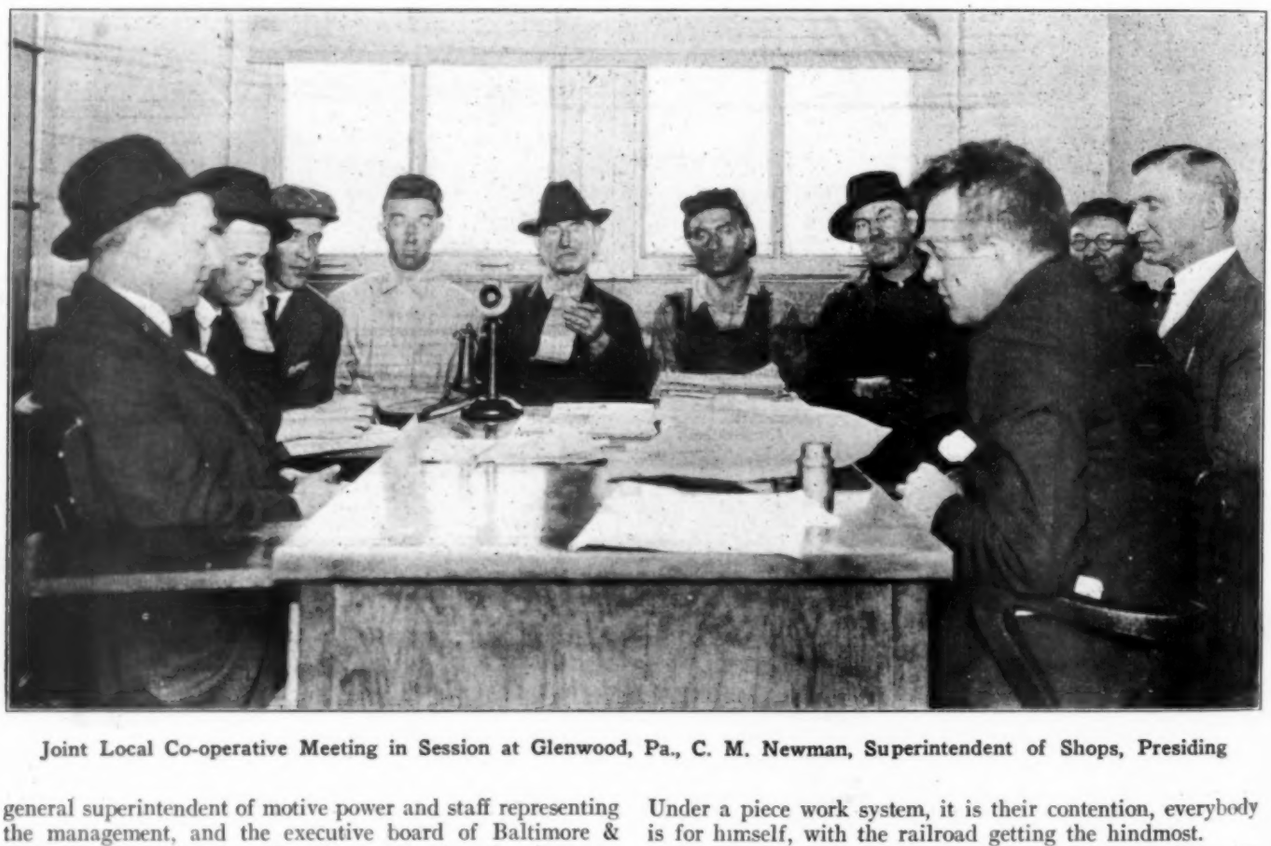
Further, in keeping with the first principle, the agreement provides for tri-monthly joint system co-operative meetings between the chief of motive power and equipment or the general superintendent of motive power and staff representing the management, and the executive board of Baltimore & Ohio System Federation No. 30, representing the shopmen. Careful minutes will be kept of all meetings, local and system, copies of which will be furnished to the general mechanical department headquarters at Baltimore, department headquarters of Lines East and West at Baltimore and Cincinnati, respectively, system federation headquarters at Cincinnati, and the local officers and shop federations concerned.

The subjects to be considered by these local and system co-operative meetings will have chiefly to do with such matters as shop, yard and roundhouse operation; material supply, distribution, care and saving; methods of doing work, job analysis; quality of work performed; co-ordinating, scheduling, routing and planning of work; group and shop performance records; conditions of shops, grounds, tools, equipment and facilities, and shop and department morale. But above all else, as the "Memorandum Agreement" indicates: *"Suggestions and ideas advanced will be given fullest consideration, having in mind that the specific purpose of these meetings is mutual helpfulness and not criticism and faultfinding."*

Sharing the Gains

The second principle, "fair sharing of the gains of co-operation," is to be realized through improvements in working conditions and wage income, as resulting from the day-by-day betterments following intensified co-operative efforts, and from occasional negotiations with management based, among other things, on actual showings made through co-operations. Neither piecework, bonus or task systems of any kind are intended as the ultimate method of reward for the co-operative efforts of the shopmen.

Methods of wage payment on the individual or piece basis the Baltimore & Ohio shopmen maintain, destroy the most fundamental requirement of efficient and economical shop operation, namely, the closest possible co-operation between man and man, gang and gang, department and department. Under a piece work system, it is their contention, everybody is for himself, with the railroad getting the hindmost.



Joint Local Co-operative Meeting in Session at Glenwood, Pa., C. M. Newman, Superintendent of Shops, Presiding

The provision of the agreement recognizing the foregoing principle of reward reads as follows:

"The welfare of the Baltimore & Ohio Railroad and its employees is dependent on the service which the railroad renders the public. Improvements in this service and economy in maintenance and operating expenses are greatly promoted by willing co-operation between the railroad management and the voluntary organizations of its employees. When the groups responsible for better service and greater efficiency share fairly in the benefits which follow their joint efforts, improvements in the conduct of the railroad are greatly encouraged.

Stabilization of Employment

The third principle, "steadier work" is to be carried out by doing Baltimore & Ohio work in Baltimore & Ohio shops, the extension and improvement of Baltimore & Ohio repair and manufacturing facilities, and by such other measures as

time and future experience will indicate as being wise and necessary. The management has agreed to develop a program step by step along the foregoing lines, especially insofar as co-operation results in lowered repairs and manufacturing costs, thereby justifying the management in doing work in Baltimore & Ohio shops in preference to purchasing materials and equipment from outside concerns.

Proposals, ideas and suggestions by the local shopmen for consideration at the joint local co-operative meetings, the spokesmen for the organized workers maintain, will naturally come to life through daily contact with their work. The mechanics in the shop, taken as a whole, are full of useful ideas and a basic desire to be helpful in bettering things around shops. It is simply, their spokesman maintain, because the average railroad shop organization makes no practical provision for releasing the many ideas of the average man in overalls, but instead rather successfully suppresses the fundamental co-operative instinct of the shop worker, that this most valuable of all potential assets of the human part of our railroad shops is utterly lost.

It is the conviction of the Baltimore & Ohio shopmen and their leaders that the co-operative shop conference plan, based as it is on genuine recognition of the men's own local and system federated shop committees, is the most promising method yet devised for releasing these latent assets and applying them to the good of the Baltimore & Ohio, its patrons and employees. At all events, the Baltimore & Ohio System Federation officers point out, the value of the regular union federated shop committeemen as the contact representatives of the shopmen with management for the purpose of improving shop performance, was fully and indisputably demonstrated by the way Pittsburgh Local Federated Shop Committee No. 10 functioned in joint co-operative conference with Glenwood shops management. The fact that the Glenwood joint co-operative committee idea has now been extended to the entire system indicates that the federated shop crafts on the Baltimore & Ohio have demonstrated the truth of the foregoing theory to the satisfaction of the management.

Ideas from Shopmen

The instructions which the headquarters of Baltimore & Ohio System Federation No. 30 have sent out to each local lodge and shop federation constituting the system federation in respect to the handling of matters to be considered at the joint co-operative conferences by the representatives of the shopmen are interesting and illuminating. The letter of instructions to the membership reads in part as follows:

"Proposals, ideas, suggestions, etc., by the local shopmen for consideration at the joint local co-operative conference will naturally come to life through our daily observations in and around our jobs, benches, machines, departments and shops. Such ideas, suggestions and proposals on the part of our men should be referred to their local craft committees for handling. In this connection we would suggest that the local shop committee of each craft get together occasionally at noon time or some other time convenient to all concerned and acquaint itself with various matters and suggestions referred to it by our local members for submission to the next local joint co-operative committee meeting.

"We suggest, further, when each craft holds its local lodge meeting, that individual members bring their ideas for bettering things, jobs, output, conditions, etc., to the lodge room for consideration, discussion, and subsequent reference by the lodge to the proper craft committeeman for handling at the next co-operative meeting, provided, of course, the ideas receive the endorsement of the lodge. In general, the same procedure should be followed in getting important matters considered by the joint co-operative committee, which we now follow in the handling of grievances. Whenever the subject advanced by any one is important enough, the lodge might well discuss it at its next meeting, so that your representative at the joint meeting will have the full benefit of your experience and judgment. In short, the regular union channels should be used at all times in getting matters before the joint meetings for consideration. Depending upon the importance of the proposal, the local craft committees may refer it directly to the joint meeting through the local craft representative, or the local committee may first refer it to the next lodge meeting and even perhaps the local shop federation meeting, for discussion and action. By following this procedure the ideas of every one will get fair and adequate consideration.

"It is not the intention to utilize the joint local co-operative meetings for the adjustment of grievances. Grievances, when they do arise, should be adjusted immediately and not allowed to hold over. Furthermore, the mixing up of disputes on matters growing out of the violation of our agreement or working rules, with the consideration of measures intended to help improve the shop and its operation, will tend to confuse the purpose of these co-operative meetings, will delay consideration of grievances and in general will lessen the usefulness and opportunity of the joint co-operative meetings. * * *"

It is expected, so the Baltimore & Ohio shop union representatives advise, by the foregoing method of handling suggestions and shop operating problems, first to enlist the services of the unions in bringing constructive matters effectively to the front; second, insure that these matters will have been thoroughly considered and discussed before they are finally brought into the joint meetings for action, and finally, focus the attention and thought not only of a selected few, but of the entire shop organization on the many detail problems of railroad shop operation and production.

Another important point which the shopmen make in connection with the foregoing procedure is the necessity for emphasizing and discussing at these joint co-operative conferences, chiefly matters on which both man and management can well afford to get together for their mutual good. When meetings are held to discuss "grievances" the emphasis is on matters which tend to keep the groups apart. Hence, the necessity for keeping the handling of the two subjects apart. The co-operative meetings, experience has demonstrated, serve as an antidote for too many grievance meetings. Another point which the shopmen make is that, precisely because union organization in the form of Pittsburgh Local Federation No. 10, backed up by Baltimore & Ohio System Federation No. 30, was available at Glenwood, the co-operative program at that point functioned intensively and so brought about definite results in better work, greater output and steadier employment. The enfolding of this program all over the Baltimore & Ohio will be watched with great interest.

$400,000,000 for Grade Crossing Elimination

GOVERNOR ALFRED E. SMITH, of New York, supplementing his annual message of last January, sent to the legislature on March 3 a special message urging the adoption of a constitutional amendment to enable the state to lend its credit to railroads and municipalities to pay for changing grades at four thousand crossings of highways with railroads, approximately one-half of all in the state. Action on such an amendment would not provide actual appropriations before 1926, and in the meantime the governor recommends that the administrative machinery of the state be improved. He would have the Department of Public Works clothed with authority to deal with the whole question outside of New York City; while within New York City, which within its own limits has many serious and costly

grade crossing problems, he would vest this authority in the Board of Estimate and Apportionment; placing upon these two agencies the responsibility for presenting, within the next year, a complete program of grade crossing elimination, in anticipation of the passage of the proposed constitutional amendment. If the state should furnish four hundred millions, one-fourth of this sum, according to the laws as at present constituted, would be a charge against the state treasury, the other three-fourths to be repaid by the railroads and the municipalities.

The Governor begins his message with a reference to the large and increasing numbers of fatalities at crossings, and refers at length to the case of the crossing at Forsyth, west of Buffalo, where an automobile on a crossing was the occasion, on December 9, of a disastrous collision of express trains. A petition was filed on January 14, 1922, looking to the elimination of this highway crossing, and from then until November 24, 1923, about two weeks before the disaster, 23 different proceedings or processes are listed, each of which represented some cause or supposed cause for delay; which delays ought to have been overcome or done away with. The longest delay was one of about six months, in 1923, when the New York, Chicago & St. Louis appealed to the courts from the order of the Public Service Commission because of dissatisfaction concerning some detail of location. Serious delays of a similar kind have retarded work in New York City. The Governor does not blame the Public Service Commission or the Transit Commission wholly for the delays complained of; but the only comprehensive remedy is to provide more money. The Public Service Commission estimates the average cost of eliminating crossings at $100,000 each, making four hundred millions for 4,000 crossings; but the superintendent of Public Works thinks the estimate too high. On the other hand, there are crossings of electric railways which have not been included and the cost in New York City will be very high; so the governor thinks that his first estimate of the gross amount needed is a reasonable one. The railroads cannot furnish their half of the four hundred millions nor can the cities and towns furnish their one-quarter; they are too near the debt limit.

The Department of Public Works has nine divisional highway engineers who are in touch with all the grade crossings in their divisions and "it is ridiculous that these men should not have authority to act as to all crossings; and the state should have the benefit of their knowledge in connection with the whole broad problem."

A Labor Bill in Congress

WASHINGTON, D. C.

IDENTICAL BILLS to repeal the labor provisions of the Transportation Act and to set up four boards of adjustment, a government board of mediation and conciliation located in Washington, and a procedure for the arbitration of railway labor disputes were introduced in the Senate on February 28 by Senator Howell, S. 2646, and in the House by Representative Barkley, H. R. 7358. A statement issued by a committee representing the railroad labor organizations said the proposed measure has received the unanimous approval of the standard railroad labor organizations. The bills are entitled: "A bill to provide for the expeditious and prompt settlement, mediation, conciliation and arbitration of disputes between carriers and their employees and subordinate officials, and for other purposes."

The bill would establish four boards of adjustment, to handle disputes affecting various groups or classes of employees, to be appointed by the President from nominees of the employees and subordinate officials and the nationally organized crafts, and of the managements, and to be paid salaries of $7,000 a year. The boards would be required to maintain offices at Chicago. Provision is also made for the establishment of a board of mediation and conciliation to consist of five commissioners appointed by the President, by and with the advice and consent of the Senate, to receive salaries of $12,000 a year each. If any dispute arising only out of grievances or the application of agreements concerning rates of pay, rules, or working conditions is not decided in a conference as provided in Section 3 of the bill, it would, under the provisions, be referred to the adjustment board authorized to hear and decide such dispute, which would be required to dispose of the dispute within 90 days, unless an extension of time is agreed to by the parties.

If any such dispute is not decided by the appropriate adjustment board, or if any proposed change in rates of pay, rules or working conditions is not decided in conference between the parties, either party may invoke the services of the board of mediation and conciliation created by the act. Upon the request of either party the board would be directed to put itself in communication promptly with the parties to the controversy and use its best efforts, by mediation and conciliation, to bring them to an agreement. If such efforts are unsuccessful, the board is directed to endeavor at once as its final required action to induce the parties to submit their controversy to arbitration in accordance with the provisions of the act. The board would also be authorized to proffer its services.

Freight Car Loading

WASHINGTON, D. C.

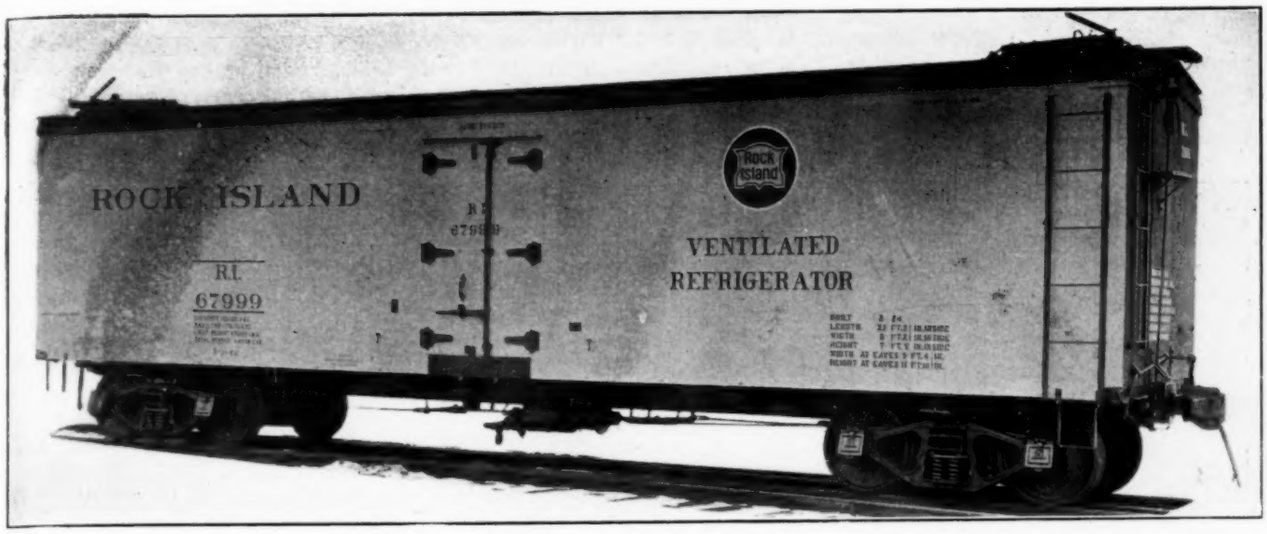
REVENUE freight car loading in the week ended February 23, which included a holiday, showed a decrease of nearly 90,000 cars as compared with the previous week, but the total, 845,898 cars, was still above the record for the corresponding week of previous years and represents an increase of 15,711 cars as compared with last year and of 116,973 cars as compared with 1922. There were decreases as compared with the corresponding week of last year in the loading of coal, coke, ore, and miscellaneous freight, while other classes of commodities showed increases, the largest increase being in l.c.l. merchandise. There were also decreases as compared with 1922 in grain and grain products and coal, while in the Allegheny and Central Western districts the loading was less than it was during the corresponding week of last year. The summary as compiled by the Car Service Division follows:

REVENUE FREIGHT CAR LOADING—WEEK ENDED SATURDAY, FEBRUARY 23, 1924

Districts	1924	1923	1922
Eastern	200,343	194,900	179,496
Allegheny	167,566	174,680	158,215
Pocahontas	42,647	31,393	37,159
Southern	140,341	138,906	114,897
Northwestern	113,673	108,055	77,076
Central Western	126,171	129,876	113,034
Southwestern	55,157	52,377	49,048
Total Western districts	295,001	290,308	239,158
Commodities			
Grain and grain products	44,226	40,344	46,798
Live stock	33,359	32,003	27,529
Coal	175,834	178,558	186,640
Coke	12,553	14,913	8,130
Forest products	77,164	69,762	47,385
Ore	8,514	9,597	4,350
Mdse. L. C. L.	213,073	201,726	197,911
Miscellaneous	281,175	283,284	210,182
Total	845,898	830,187	728,925
February 16	935,109	816,646	773,275
February 9	906,489	849,352	777,791
February 2	929,936	865,414	747,895
January 26	891,326	869,464	740,386
Cumulative loading to date	6,979,568	6,735,564	5,813,005

The freight car surplus for the week ended February 14 averaged 127,415, including 54,862 box cars and 46,293 coal cars. On February 15 the number of freight cars in need of repair was 164,895, or 7.2 per cent of the ownership, as compared with 7.1 per cent on February 1.

Car loadings in Canada are summarized on page 567.

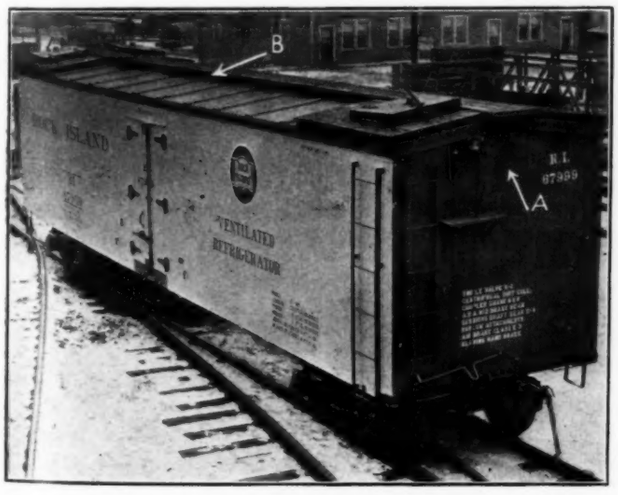


New Refrigerator Car Built for the Rock Island by the General American Car Company

Ventilated Rock Island Refrigerator Cars

Special Attention Given to Method of Insulating—Acme Ventilation System Installed

THE FIRST OF an order of 250 refrigerator cars, built for the Chicago, Rock Island & Pacific, by the General American Car Company, Chicago, has recently been received and placed in regular service. These cars are not replacements but represent additional new equipment purchased by the Rock Island to improve the quality and amount of its refrigeration service to patrons shipping fruit, vegetables and other perishable food products.



An End View of the Car, Showing Some of the Specialties; (A) Is the Inlet and (B) the Outlet of the Acme Ventilating System

Insulation Massed Together

The new refrigerators are equipped with Bettendorf trucks and underframes; the superstructure is of wood and the outside roof of steel. Particular attention has been paid to getting maximum efficiency from the insulation, and, in line with recent investigations, it was decided to mass the insulation material rather than apply it in layers with air spaces between. Experience has shown the difficulty of keeping the walls of dead air spaces tight in movable structures such as refrigerator cars, and unless these walls are tight so as to prevent all circulation of air, the effectiveness of the air spaces as an insulating medium is largely destroyed.

Massing the insulation on the outside of the car also simplifies repairs, and is a particular advantage in case the car is side swiped and the sheathing and insulation damaged without piercing the inner lining. Repairs can then be made much more easily than if the insulation is split, part being on one side and the remainder on the other side of the posts.

Another advantage of massed insulation on the outside of the car is that it permits the location of the side framing about 2 in. in from the edges of the sills, thereby giving a stronger construction and one which provides less possibility of the post and brace castings being crowded out by a bulging load.

Reference to the drawing, which is a cross section through the center of the car, shows in detail the insulation used on floors, sides and roof. Above the 13/16-in. blind floor a layer of cork insulation 2 in. thick is applied and waterproofing compound covers that to the depth of ¼ in. Special care has been taken at the sides between the floor and the side insulation to fill this space with insulating material and to waterproof it so that even though water be standing on the floor of the car it cannot get down at the end of the flooring to cause rot. The main flooring, 1¾ in. by 5¼ in. face, is applied over a layer of paper on top of the insulating material.

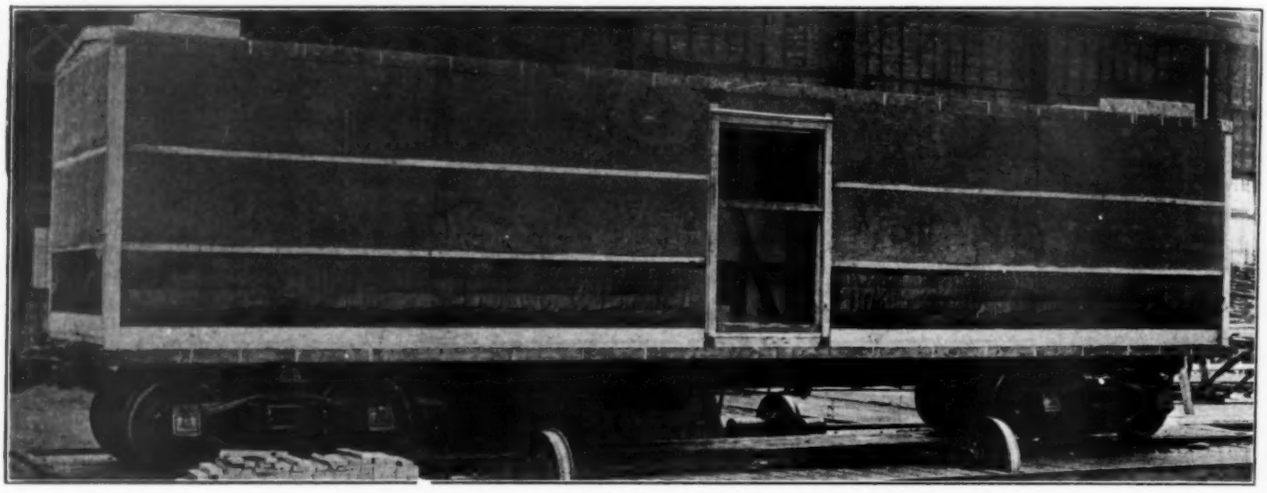
Two types of insulation are used on the car sides as indicated in the drawing and one of the photographs. One layer of ½-in. Insulite covers the entire side of the car, taking the place of the usual ⅜-in. blind lining. It is applied next to the posts and braces. This adds considerably to the stiffness of the side walls. The car sides up to the lower belt rail are covered with two courses of ¾-in. Keystone hair felt. Three courses of ½-in. Flaxlinum are

applied to the car sides above the lower belt rail. The car doors, shown in cross section on the left of the drawing, are also insulated with one layer of ½-in. Insulite and three courses of ½-in. Flaxlinum.

The roof is thoroughly insulated with two courses of ½-in. Insulite and 1½ in. of plain hair felt, the top surface of the Insulite being mopped with a coat of waterproofing compound. The outside of the roof is protected by an outside metal roof.

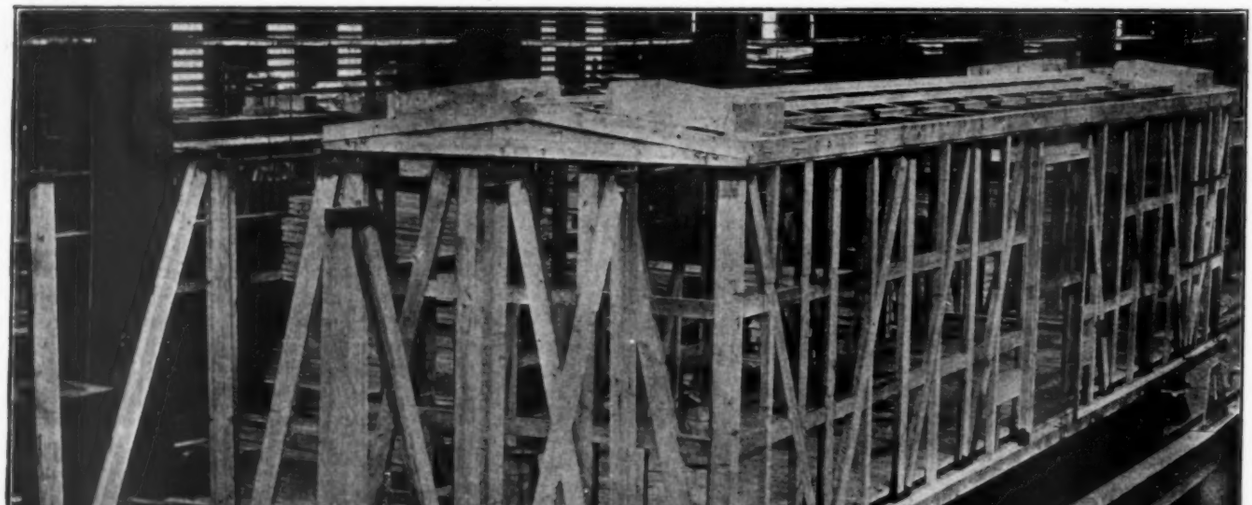
It will be noted from the above that the floors and sides of the car have the equivalent of four ½-in. courses of insulation while the roof has the equivalent of five ½-in. courses. It is believed that this car will be found to compare favorably with other high class refrigerator cars built recently for similar service.

Basket-type ice bunkers are used and the hatches are of the Emerick design, which permits of more easily filling the ice boxes to the top. The Sessions type K-4 draft gear is used on one-half of the cars and the Miner class A-18-S draft gear on the remainder. All of the cars are equipped with Farlow draft attachments, Chicago-Cleveland Mullion type outside metal roofs, Klasing hand brakes, Kass safety tread steel brake steps, Miner door fasteners. The side and end ladders are made by the Wine Railway Appliance Company. The car is also equipped with floor racks which can be turned up against the side of the car for cleaning or when handling ordinary freight.



Two Courses of Hair Felt Are Used Up to the Belt Rail and Three Courses of Flaxlinum Above

Several operations in the construction and assembly of these cars are clearly shown in the illustrations. One view indicates how the posts and braces are erected, and how the roof, assembled on the floor as a unit, is applied on top. Another view shows the different insulation above and below the lower belt rail.



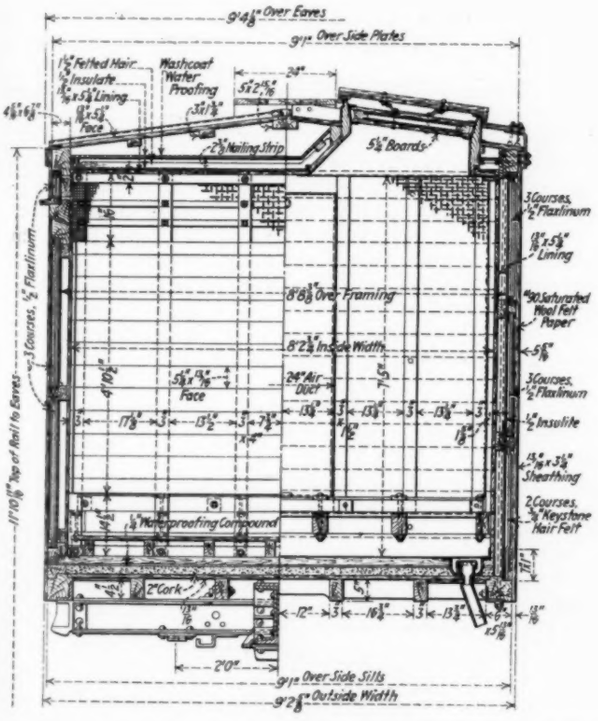
This View Shows the Flooring, Insulation and Method of Applying the Roof

Acme Ventilation System Used

Another feature of the new Rock Island cars is the ventilating system, developed by the Acme Refrigerator Corporation, Chicago. This system, a description and drawing of

which appears on page 1482 of the May 21, 1920, *Railway Age*, is not new, having been first applied to an experimental refrigerator car in 1920. The correctness of the principle involved has been demonstrated in subsequent applications to other refrigerator cars, cold storage rooms and Rock Island dining car refrigerators, on which it is standard.

The Acme System is designed to allow gases, heat and moisture from perishable food products to escape by means of two small ventilators in the top of the car without interfering with the normal processes of refrigeration and air circulation in the car. In the usual construction these gases are found stratified in the upper part of the car close to the ceiling and because of their less density they can be eliminated by the proper means at the highest point. Gases from the food products are said to have a strong affinity for water vapor, and therefore in escaping carry with them a considerable amount of moisture which would otherwise promote



Cross Section of the Car Showing the Method of Insulating

decay. The result is a strong tendency to prevent moisture and mold from forming on such products as meat, vegetables, berries, etc., when these are shipped long distances.

As applied to the Rock Island refrigerator cars this ventilating system consists essentially of two units, one for gathering and discharging the gases mentioned, and one for equalizing atmospheric pressure and admitting enough air to balance that which escapes. One inlet *A* (shown in one of the illustrations) is provided in each end of the car, and there are two ventilators or outlets, one of which is shown at *B*, under the running board near the center of the car.

The gathering unit consists of a shallow galvanized iron ceiling duct, open at both ends near the ice bunkers at points where the gases are said to reach their highest temperature and exert the greatest pressure. Atmospheric pressure, having been equalized at a lower point, the gases pass through the ceiling duct toward the center of the car and are thence allowed to escape through the ventilators. These ventilators are slightly off center with respect to the center line of the car and the openings to them from the ceiling duct are staggered so as not to present too direct an opening to the atmosphere.

To equalize atmospheric pressure and supply an equal weight of cold air, the inlet *A* is connected to a shallow metallic air-tempering can, secured to the end lining of the car back of the ice bunker and extending nearly to the drip pan. The air from the outside entering this can and traveling downward precipitates its moisture on the cold metal, and is pre-cooled so that it enters the car both dry and cool. The small volume of air entering indirectly is thus automatically controlled by the elimination of gases and water vapor by natural means.

The result of the operation of this ventilating system is said to be the elimination of gases and excess moisture, thus tending to provide a circulation of cold, dry air which is most effective in preserving perishable food products. Keeping the interior lining and insulation dry will also have a tendency to prolong the life of the car. In view of the number of Rock Island refrigerators which are to be equipped with this ventilating system it will be tested under practically all kinds of service conditions. The results of these service tests and the extent to which they substantiate claims made for the system will be watched with interest by railroad men in both the operating and mechanical departments.

Railroad Legislative Matters in Congress

WASHINGTON, D. C.

MORE than 50 per cent of the tonnage which can be moved either by water or rail from the eastern seaboard to the Pacific coast is now moving by water, according to testimony before the Senate committee on interstate commerce, which has been holding hearings since February 18 on Senator Gooding's bill to amend the fourth section of the Interstate commerce act.

The presentation of direct testimony at the hearing was concluded on March 4 and rebuttal testimony was taken up on the following day. Testimony on behalf of the railroads in opposition to the bill was begun on February 27 by L. J. Spence, director of traffic of the Southern Pacific, and other railroad officials have also been heard. They have pointed out that the intermountain shippers who have been urging the passage of the bill are trying to have Congress settle a question which is now before the Interstate Commerce Commission on the applications of the transcontinental roads for authority to meet water competition at the Pacific coast terminals without reducing the intermediate rates correspondingly and that the present rates to the intermountain territory, under the latest decision of the commission, are no higher than those to the coast terminals.

Charles Donnelly, president of the Northern Pacific, who testified on February 29, said that the effect of the proviso in the first section of the bill, prohibiting a carrier from charging more for a shorter than for a longer distance for the transportation of passengers or property, would be to make impossible the making of lower export rates to a terminal and practically to establish a distance scale of rates, because the qualifying words "the shorter being included within the longer distance," used in the present law, are omitted. Senator Gooding said that he had not intended to go so far. Mr. Donnelly also said that the time of six months allowed for readjustment of the rates is too short because rates made to meet water competition would become unlawful the minute the bill became a law and only the departures authorized by the law could be continued for six months. Today in the western territory, Mr. Donnelly said, there is not a single

instance of a departure from the long and short haul clause that has not been either corrected or attempted to be corrected by the filing of a tariff with the commission, although tariffs may have been suspended. In his opinion the present law is adequate because there can be no fourth section violations except such as are countenanced by the Interstate Commerce Commission and if the law were enacted at once there would not be a change in the western rate structure.

Senator Gooding referred to the pending applications, saying that under the policy established by the commission they will be granted unless Congress sees fit to say they shall not. To this Mr. Donnelly replied that the commission has never allowed what the carriers have asked for in these cases and in the last case refused to allow them any relief.

Senator Gooding had referred to the traffic to the coast terminals involved as constituting only one per cent of the traffic of the roads but Mr. Donnelly said that of the tonnage destined to the Pacific coast terminals which can be moved either by water or by rail more than 50 per cent is moving to-day by water and of the commerce involved in the applications now before the Interstate Commerce Commission vastly more than 50 per cent is moving by water. In 1921, he said, the tonnage from the east to the Pacific coast moved by the Panama canal was 91,197 tons as compared with 83,473 tons moved by rail; in 1922 the canal tonnage was 260,949 as compared with 63,790 by rail, and in 1923 the canal tonnage was 4,446,510 as compared with 82,563 by rail.

The fourth section relief asked by the carriers does not produce undue discrimination. Mr. Donnelly said "because the lower rate to the more remote point does not give the shipper there something he does not possess already. We are asking relief in the hope and the expectation that if allowed to make these rates we will get some of the traffic that is now moving by water and in getting that traffic even at these lower rates we will add something to our revenues, as the result of its movement; not as much as we should normally get, not as much as we must normally get in order to get that aggregate return necessary to produce the fair return which the law contemplates; but still something. We are not asking the commission to allow us such rates as will drive the boats from the sea. I think the commission would not be doing its duty if it ever allowed us to make rates to the terminals which would have that effect." He pointed out that the water rate to the coast on nails, for illustration, is 40 cents and that the rail rate to the seaboard would make the combination rate to Seattle 71 cents. "We are asking," he said, "to move a keg of nails to Seattle for 80 cents while charging a dollar to Spokane. If that would injure Spokane I would not consent to the application, because the Northern Pacific serves both. How does it hurt Spokane for us to make an 80 cent rate to Seattle if the shipper at that point can already get it for 71 cents by water?"

Thetus W. Sims, former Congressman from Tennessee and chairman of the House committee on interstate and foreign commerce, made a long speech to the committee on railroad securities, rates of interest, free passes and other matters, winding up with an appeal for the passage of the bill. He submitted an article on railroads which he said had been rejected by the Saturday Evening Post but which the committee accepted for publication in the record.

Transportation Act Does Not Preclude Rate Reductions

Senator Jones of Washington had published in the Congressional Record of February 26, a letter from Secretary George B. McGinty of the Interstate Commerce Commission replying to one from one of the senator's constituents who had complained that "Whenever we ask the Interstate Commerce Commission for any reduction in rates they promptly advise us that they are required by the transportation act to make and maintain sufficient rates to produce an average earning of 5¾ per cent on all railroads." After citing section 15a of the act Secretary McGinty said: "The above considerations are general in their character and do not in any manner preclude individual rate adjustments involving both increases and decreases. As you know, reports are constantly being issued by the commission providing for reductions in rates where such action has been found warranted under the existing circumstances. Moreover, tariffs and supplements are being received from the different carriers which bring about various advances and reductions in individual rate items through voluntary action on their part. I believe the above considerations will remove any misunderstanding under which your constituent may be laboring; if not, however, I will be pleased to advise further in the premises."

The Senate committee on interstate commerce on February 28 again reported to the Senate in a modified form the resolution introduced by Senator Gooding, S. Res. 124, directing the Interstate Commerce Commission "to secure information relative to the amount of money expended for the purpose of creating public interest favorable to railroad sentiment."

The committee also submitted a favorable report with an amendment on S. 1499, to prohibit the use of wooden cars under certain circumstances.

Senator Jones of Washington has introduced a bill, S. 2589, to provide that transportation rates by rail or water for members of organizations consisting of veteran soldiers, sailors, marines and those of Indian wars, including immediate members of their families traveling with them, to and from the national encampments and conventions of their respective organizations, and for the transportation of parents of deceased soldiers buried in this country to the place of their burial, shall not be more than one cent per mile. The bill provides, however, that such rate shall apply to only one such encampment, convention or visit in any one calendar year, unless the transportation companies shall desire to give it.

Senators Smith of South Carolina and Sheppard of Texas have introduced bills similar to those which have been previously introduced to amend paragraph 3 of section 16 of the interstate commerce act relating to the statute of limitations on claims. Bills to prohibit a surcharge for Pullman passengers have been introduced by Representative Keeler and by Senator Copeland.

Representative Berger, of Wisconsin, has introduced a resolution, H. Res. 191, providing for the creation of a committee of seven members of the House to investigate all the facts regarding the railway shopmen's strike.

A large number of resolutions, petitions and memorials urging Congress to amend the transportation act, or not to make any change in the act, have been presented in Congress of late by various members and published or mentioned in the Congressional Record. For a time there were more of these resolutions urging a change in or repeal of the act but lately there has been a flood of them from commercial organizations and groups of railway employees asking that the act be let alone. There have also been letters from railway employees to Congressmen stating that the resolutions asking that no change be made in the act have been sent at the instance of railroad officials and it has frequently been charged that they have been the result of coercion or implied threats of loss of employment.

THREE YOUNG LIONS en route from Minneapolis, Minn., over the Chicago, Milwaukee & St. Paul, on February 20, destined to the winter quarters of a circus in the east, broke the bars of their cage and took possession of the baggage car in which they were riding until its arrival in Chicago, when they were forced back into their cage.

I. C. C. Continues the Brake Investigation

A. R. A. Observers Disagree with Bureau of Safety Report on N. & W. Tests of A. S. A. Brakes

WASHINGTON, D. C.

A REPORT OF the observers of the American Railway Association of the tests of the automatic straight air brake conducted by the Interstate Commerce Commission on the Norfolk & Western in July and August, 1923, was the principal subject of testimony at the hearing before Examiner Mullen of the commission in connection with the commission's air brake investigation, following the testimony last week on the report of the tests made by W. P. Borland, director of the Bureau of Safety of the commission, and the questioning of a number of railway executives. Contrary to the conclusions expressed by the Bureau of Safety the railroad committee made an unfavorable report on the results of the tests.

A sub-committee of the Committee on Safety Appliances, Mechanical Division, American Railway Association, was appointed to represent the association during this test and eighteen observers, most of whom were air brake specialists, were appointed to assist the sub-committee in observing the test and recording as much of the records as would be available. Certain members of the sub-committee were unable to be present at the test and therefore the report of the result was made and signed by the observers, rather than by the sub-committee. This report follows the schedule of tests of the commission and sets forth at the beginning of its report on each test the purpose of the test as indicated by the commission's schedule. The report is as follows:

Running Tests

SERIES A

A loaded train of fifty 100-ton cars, all equipped with A. S. A. brakes, was run from Bluefield to Norfolk, a distance of about 360 miles. Three days were taken for the run. The testimony at the hearing in the proceeding previously referred to related to a train of 70 loaded cars, but as stated above, only 50 were used in this test.

Trouble was experienced all the way to Norfolk, with brakes failing to apply, failing to release and with undesired releases. As an example of the difficulty encountered with stuck brakes, when attempting to leave siding at Suffolk which had been taken to allow passenger train to pass, brakes had to be bled off on eight cars before test train could proceed.

On some cars wheels were hot, while on other cars wheels were cold at the foot of grades.

Emergency braking pressure was not obtained throughout the train when emergency applications were attempted following a release or following a service application. The time of transmitting emergency action through the train was very slow, being from 7.5 to 11 seconds for a 50-car train.

Descending Blue Ridge grade, the brake pipe and brake cylinder pressures were equalized at about 40 lb. on the last application before reaching the foot of the hill. The speed at this time was 26 miles an hour and was accelerating. As this occurred, however, just as the foot of the grade was being reached, an opportunity was afforded for releasing and recharging the brake system before a stop was necessary. In explanation of this depletion of brake pipe pressure, our observers were advised that more than 15 brakes should have been set in graduated release at the top of the hill. It is, however, the regular practice of the N. & W. to use only 15 retainers while descending this grade. The grade is 4 miles long with a gradient varying from 1.21 to 1.31 per cent.

In other respects than those cited above, the operation of this train was similar to a train equipped with standard brakes, but in no respect was it superior.

SERIES B

From Norfolk to Crewe a train of 100 empty cars was run, the first 37 being equipped with A. S. A., the next 25 with standard and the remaining 38 with A. S. A. brakes.

Two days were required for this run of 129 miles and brake operation throughout was very unsatisfactory.

Many brakes failed to apply, others applied and released immediately, and a wide variation occurred in brake cylinder pressures developed on various cars during the same reduction of brake pipe pressure. After each stop many brakes were hard to release and frequently one or two full service applications had to be made for the sole purpose of getting these brakes off. Some brakes could only be released by bleeding.

Full release position of the brake valve was abandoned to avoid an overcharge and reapplication of the brakes in the forward portion of the train during attempts to release. The methods of brake valve manipulation resorted to would be impractical in general service.

An emergency application was attempted following a 15-lb. service reduction, but the emergency failed to go through the train. At a speed of 15 miles per hour, a straight emergency was tried, but this also failed before it reached the rear end.

In spite of the fact that the throttle was kept open and the engine brake held off while train brakes were being applied, in order to avoid a run-in of slack, the shocks experienced were extremely severe, even during service applications.

In test 2-B the observers' box in car 60 was torn loose from its fastenings and turned over. This happened again in the next test, 3-B, and the box was then abandoned. Numerous wedges and brasses were knocked out of place, which produced hot boxes on eight cars.

A. R. A. Observer Dow on car 80 was badly shaken up, and at his request was assigned to other duties after test 6-B. I. C. C. Observer Taylor was knocked down and injured in car 100 and went to Crewe on a passenger train as a result of those injuries. All of this damage and these injuries resulted from ordinary service applications with only 5- to 15-lb. reductions.

When the first straight emergency application was made (test 7-B, speed 15 miles per hour), the result was disastrous. Notwithstanding the fact that due warning had been given and the observers advised to protect themselves, their best efforts proved unavailing. The men in the cars were torn loose from the supports they were using and hurled across the car floors. A. R. A. Observer W. H. Clegg in car 100 had his side and leg injured. General Air Brake Inspector Looney of the N. & W., who was riding in the caboose, also had his side and leg injured, and H. D. Lyon of the I. C. C. Safety Division was thrown headfirst through the cupola window onto the roof of the caboose, injuring his knee. Practically everyone on the rear of the train suffered from bruises resulting from this test and the service applications which preceded it, and a number of the observers were unable to return to the train until the second day following.

Inspection of the train after this test showed considerable damage done. Eight journal boxes were broken, five truck springs knocked out of position, the service reservoir pipe was broken at the triple valve connection on six cars and foundation brake gear was broken on one car. Marker lights were knocked out of brackets on the rear caboose and thrown to the ground, and everything loose in both cabooses was thrown against the front end. Brake shoes were knocked out of brake heads on cars 87 and 88 and the shock put the trainograph out of commission on car 90.

The cars in this train were all comparatively new, of steel construction, and withstood the shocks remarkably well. The only signs of damage to the car structures were at the buffer blocks, the drawbars having cracked several of these. Total slack in this train measured 45 ft.—a small amount for a train of this length.

After this emergency test the other emergency tests on the schedule for the 100-car train were abandoned. A special emergency was attempted on August 2, however, at a speed of 25 miles an hour. The shock which resulted at this higher speed was only slightly less severe than in the preceding emergency test. Additional journal boxes were broken, the triple valve on car 100 was broken off at connection, the brake cylinder pipe was broken on car 89 and the side was knocked out of tool box on one caboose. The rear brakeman's impression of the severity of the shock was reflected by his having telephoned to the head end that the trucks of the rear caboose were raised off the track by the impact. The fact that the padlock and hasp were broken off when the door of a closet in the forward caboose flew open is cited as an indication of the stresses to which these cars were subjected. Also the stove was broken in this caboose and parts of it were thrown out through the open-doorway.

Although steam was used throughout each brake application, sometimes enough to slip the drivers, the shocks during service

applications continued on this second day with a severity almost equal to that of the first day.

It was demonstrated conclusively by both the standing and running tests that the A. S. A. brake is much slower in serial action,* in both service and emergency applications, than the standard brake.

The quickest serial action obtained with this 100-car train in emergency was 15.5 sec. It is only necessary to point out further, that in at least 13 of the total 22 tests, both service and emergency, at speeds of 10 to 20 miles an hour, the brakes did not apply effectively on the rear end of the train until after it had come to a stop.

Series C

The run from Crewe to Roanoke (128 miles) with 75 cars equipped with A. S. A. brakes also required two days. With the reduced length of train the same erratic brake action was experienced as with the 100-car train containing 25 standard brakes, and the shocks were only slightly less severe. During service braking with this train, most of the shocks resulted from a run-in of slack followed by a very severe run-out.

During test 5-C, a service reduction of 10 lb. at a speed of 15 miles an hour, a knuckle was broken at the rear of car 75, and, although the hose was open to the atmosphere long enough for an observer to walk forward from the caboose and close the angle cock, no emergency application was apparent at any point ahead of car 44. Men from the dynometer car walked to the rear to verify the report, received by telephone, that the train had parted.

A service reduction of 15 lb. at 20 miles an hour caused such a severe run-in and run-out that the roll was knocked out of the trainograph on car 19.

Emergency applications on this run resulted in nearly as much damage as with the 100-car mixed train. All cars of this train had steel journal boxes and therefore none were broken except on the caboose. The water cooler, about the only thing in the caboose which had withstood the 100-car train shocks, succumbed to the first emergency application made and was torn from its fastenings and hurled to the end of the car with burst seams.

During this and other tests the brake-pipe reservoir pipe was broken on car 71, emergency reservoir pipe was broken at triple valve and brake shoe was knocked out of brake head on car 7. Also, seven brake pipe reservoir nipples were broken. At Phoebe Yard on the morning of the second day 68 brasses had to be removed, 10 being replaced with new ones, while the remaining 58 were cleaned off and put back in position.

Most of the observers at the rear end, as well as the rear brakeman, left the train before emergency applications in order to avoid possible injury and no serious injuries resulted on this run.

On two specific occasions it was noted that the brake-pipe was depleted to 15 lb. without any indication of the so-called automatic emergency application which your observers were informed would occur whenever the brake-pipe pressure dropped to 25 lb.

The records show that the serial action in emergency was even slower with the 75-car A. S. A. train than with the 100-car mixed train. The time required for the application to reach car 75 in the one case varied from 15.8 to 19.8 sec., whereas with the longer train containing 25 standard brakes car 100 applied each time in about 16 sec.

During emergency test 12-C there were no observers, official or otherwise, on the rear of the train (for reasons of safety), but observers on the ground noted that the train came to a full stop and the recoil had carried it back about 15 ft. before any of the brakes on the rear applied. The electric contact gage on car 54 showed that it was not until 2.8 sec. after all this had occurred that the brake applied effectively on that car.

Serial action during service applications was correspondingly slower than with the 100-car mixed train. During at least 12 of the total of 24 scheduled tests of Series C the brakes did not apply on car 75 until after the train had come to a stop.

Upon arrival at Roanoke this 75-car train was prepared for use in the standing tests. An inspection of the train made by members of your committee on August 13 during the progress of these standing tests disclosed the following:

Slid flat wheels	pairs	15
New Wheels	pairs	3
Wheels recently applied	pairs	13
Spotted wheels	pairs	2
New triple valve		1
Triple valves apparently recently repaired		10
Bolster springs broken, newly applied or missing		27

It was not found possible to get from the N. & W. a record of wheel replacements on the cars equipped with A. S. A. brakes during the time these brakes have been in service, as no such records were available.

Standing Tests—Series D, E, F and G

Series D

In Series D the piston travel was first adjusted to 9 in. or more on 37 cars in the middle of the train and 4 in. to 6 in. on all other cars. Three service applications with reductions of 5, 10 and 15 lb., respectively, were then made and following each reduction the brake valve was lapped and brake-pipe and brake cylinder pressures noted each minute for three minutes after the brake started to apply. Each test was repeated for the purpose of check.

The train was then switched and the cars with short piston travel were placed in the middle with the long piston travel at the ends, following which the above tests were repeated.

Series E

In this series the piston travel on all cars was adjusted to 9 in. or more. Three service applications were then made consisting of 3, 5, and 8-lb. reductions, respectively. After each reduction the brake valve was lapped and the brake-pipe and brake cylinder pressures noted each minute for three minutes after the brake started to apply. As in Series D, each test was repeated for the purpose of check.

Series F

The piston travel on all cars was adjusted to 4 to 6 in., the tests made under Series E were repeated, and the same observations made.

Series G

Piston travel on all cars was adjusted to 6 to 8 in. and tests under Series E again repeated.

The above standing tests confirmed what had already been demonstrated by the running tests, namely, that with the A. S. A. brake equipment the minimum brake application which can be made is a full service application. It is shown clearly by the records of these tests that it made little difference whether the engineer made a 3, 10 or 15-lb. reduction with his brake valve, he obtained substantially the same ultimate brake cylinder pressure. This should not be taken to mean that the brake cylinder pressures were uniform each time, for quite the reverse is true. During these tests the pressures obtained from 3 and 5-lb. reductions were sometimes greater than those obtained with a 15-lb. reduction and sometimes they were less, but they averaged about as high in the one case as in the other and in no case did the engineer have any control over what he would ultimately get.

The instant he moved his brake valve to service position and the first triple valve began to apply he had no further control over that application. Whether he returned his brake valve to lap or not the brakes continued to apply until full equalization pressure was reached.

This obviously could not be otherwise with the A. S. A. brake and is the inevitable result of a fundamental feature of that brake. The taking of air direct from the brake-pipe to fill the unequal brake cylinder volumes and maintain them against leakage is unsound in principle and is bound to deprive the engineer of all control over the amount of braking power to be applied during service applications. Of course the elimination of this feature would eliminate the "straight air" from the Automatic Straight Air brake.

With reference to the effect of unequal piston travel on brake cylinder pressure, it was noted that although there did not appear to be any definite relation between piston travel and the amount of cylinder pressure obtained, the tendency was toward higher pressures, more promptly developed, when the piston travel was long, doubtless due to the additional drain on brake-pipe air to supply these larger volumes, and the consequently more rapid automatic reduction in brake-pipe pressure.

Series H

In this series of tests various rates of brake cylinder leakage were artificially created and after each change both service and emergency applications were made and pressures noted for several minutes. A total of 30 such tests were concluded and an adequate basis was therefore afforded for certain conclusions.

With standard brake-pipe pressure of 70 lb., the average maximum brake cylinder pressure obtained with a 20-lb. reduction

*Although the term "serial action" is used in a number of places throughout this report, it is necessary to point out, in order to avoid any misunderstanding, that, strictly speaking, serial action apparently does not occur with the A. S. A. brake. For instance, the brake on Car 1, instead of being consistently the first brake in the train to apply and being followed in turn or "serially," by each succeeding brake toward the rear of the train, frequently did not apply until after the brake on Car 30, 50, or even the last car had applied. In fact, the records show that during service applications with the A. S. A. equipment, the brake in car 1 required anywhere from 1.8 seconds to 2 min. to apply, the average time being more than 18 sec. Under such conditions, if the time of serial action be taken as the difference in time between the application of the brakes on the first and last cars, it does not mean anything for this time would sometimes be less than zero. Therefore, whenever time of serial action is mentioned in this report it should be taken to mean time from movement of brake valve to application of brake on the last car. It should be noted that this or any other brake was considered as having applied when 10 lb. cylinder pressure had been developed—the pressure at which the electric contact gages were set to operate.

amounted to only about 42 lb., with pressures at the head end usually somewhat higher than at the rear of the train.

With only an 8-lb. reduction the average maximum cylinder pressure was about the same. Theoretically a 20-lb. reduction should produce a cylinder pressure of 50 lb. and an 8-lb. reduction a cylinder pressure of 20 lb.

It was noted that the cylinder pressure gradually increased regardless of the leakage—or more strictly speaking because of the cylinder leakage—until the point of equalization with the brake-pipe was reached, when both leaked down together. At no time is the brake cylinder pressure maintained in the usually accepted sense of this term.

It should be noted here that with the standard brake, excessive cylinder leakage may exist on one or more cars in a train without affecting the brake-pipe pressure or the cylinder pressures on any cars other than those involved, whereas this brake cylinder leakage maintaining feature of the A. S. A. brake causes all the other brakes in the train to leak down with the leaky cylinder.

It was demonstrated further that with excessive leakage in two cylinders such as would result from worn out packing leathers, it required, in one instance, 15 minutes to release brakes on the rear car, while in another instance with such leakage on three cars it was found impossible either to release the brakes or recharge the train, and after 21 minutes the test was abandoned. It should be noted that this failure was not due to inadequate pump capacity, for during all this time standard pressures were maintained on the locomotive, and the head end of the train was overcharged.

During the brake system charging test on August 13 an undesired emergency application occurred as a result of overcharging the head end. This emergency failed to go through the train.

The average maximum brake cylinder pressure obtained in the six emergency applications in this series amounted to only 53 lb., or substantially the same as that obtainable from a full service application with the standard brake.

As previously noted during the running tests with this 75-car A. S. A. train, the serial action in emergency was extremely slow and varied in this series from 17.4 to 20 sec., which is much slower than the standard brake.

Running Tests

Series B—Continued

After the conclusion of the standing tests at Roanoke a mixed train was made up consisting of 75 empty cars, 50 of which were equipped with standard and 25 with A. S. A. brakes, the latter being in the middle of the train. On August 16 this train ran from Roanoke to Bluefield and the series of tests previously made with the 100-car mixed train and with the 75-car A. S. A. train was repeated.

The brake operation on this train, while erratic in some respects, showed a marked improvement over that of the 75-car train equipped with A. S. A. brakes exclusively. None of the emergency applications attempted went through to the rear of the train, but the partial emergency was transmitted to the last car in each case in 11 or 12 sec., as compared with an average time of about 18 sec. required with the A. S. A. train of the same length.

Serial action in service applications was also more rapid and in no instance did the brake fail to apply at the rear end of the train before the train stopped, as happened so many times in the previous running tests with trains equipped exclusively with A. S. A. brakes or where the A. S. A. brakes predominated.

Slack action was either very mild or entirely absent during service applications and so far as ascertained no damage of any kind resulted from emergency action on this run.

A release of brakes was made at a speed of approximately seven miles an hour after a service application with no resulting slack action. No release of the brakes was ever attempted while the train was in motion with an empty train equipped with A. S. A. brakes exclusively.

Series I

A loaded train of 50 100-ton cars, 25 of which were equipped with A. S. A. and 25 with standard brakes, was run from Bluefield to Roanoke. This test demonstrated that the A. S. A. brakes do not harmonize on grade work with present standard brakes. These latter did the greater part of the work of controlling the train as was indicated by the fact that the wheel temperatures on these cars were comparatively high, whereas the wheel temperatures on cars with A. S. A. brakes were low. No excessive temperatures were found.

Conclusions

While the scope of this test does not, in the judgment of your observers, constitute an exhaustive investigation of any brake equipment, yet it is sufficient to enable the following general conclusions to be drawn:

1—That the automatic straight air brake possesses no new features which are either desirable or practicable in general train operation. During the course of the hearing in this proceeding claims were made that this brake possessed certain features which the standard brake equipment did not have. In the N. & W. tests certain of the features which were claimed for this brake did not function properly and other features claimed for it were not shown to be present in this equipment.

2—That the efficiency of brake operation in general service would be decreased rather than increased by the use of a brake possessing the characteristics of the automatic straight air brake equipment. This is shown by the performance of the trains equipped solely with A. S. A. brakes and is further demonstrated by the fact that in the mixed trains the functional operation of the brake equipment improved as the number of A. S. A. brakes were diminished and the number of standard brakes were increased in the train.

3—That the demonstrated shortcomings of the Automatic Straight Air brake are fundamental rather than superficial. This conclusion is based upon the judgment and experience of the observers and is confirmed by their observation of the A. S. A. brake during this test.

Although it was intimated to the A. R. A. observers who were present at this test that a new A. S. A. triple valve is being designed to greatly improve the emergency action, this knowledge does not in any way affect the above conclusions inasmuch as the results of the operation of this valve in service applications during the tests demonstrated in our judgment that it would not be practicable in general railroad service, and under certain circumstances, as heretofore outlined, might well prove dangerous.

Testimony of W. R. Freeman

W. R. Freeman, receiver and general manager of the Denver & Salt Lake, said that in the main he was impressed with the advantages of the A. S. A. brake, that his master mechanic and general superintendent were enthusiastic about it and he had formed his opinion largely on their opinions. Unless the cost was considerably in excess of that of the standard brake he thought he would purchase the A. S. A. brake. The road now has 34 cars equipped with it and a committee of trainmen had asked that it be installed on the company's passenger cars but he had been unable to obtain them. Two of the company's employees who had testified regarding their experience with the brake at a previous hearing in this proceeding, he said, were no longer in the service, not because of their testimony, but because they had left Denver without asking permission, were subpoenaed after they reached Washington, and had testified regarding "phantom trains" which do not appear on the train sheets. He said that he knew of no others among his employees who are dissatisfied with the brakes. He told of an accident in which the engineman had made a service application with the standard brake and before recharging had attempted to make an emergency application and his train ran away down a grade. He thought that with the A. S. A. brake this would not have occurred and that the ability to apply emergency after a service application was a valuable feature. He discussed a test in which a 2,400-ton train of 34 cars was safely handled down a heavy grade, after he had been advised by a representative of the Westinghouse company that it would not recommend more than 1,300 tons on that grade. There was considerable cross-examination regarding this test in which Paul Synnestvedt of the Westinghouse company said that the A. S. A. brakes used were of a special design for mountain use and that the Westinghouse company also had a specially designed brake for that kind of service. Mr. Freeman said he understood that the cost of the special brake was much greater than that of the ordinary brake and he had not looked into the matter closely.

Testimony regarding the tests was given by several of the A. R. A. observers, including G. H. Wood, general air brake inspector of the Atchison, Topeka & Santa Fe; H. W. Faus, special engineer, New York Central; R. M. Long, supervisor of air brakes, Pittsburgh & Lake Erie, and W. H. Clegg, chief

inspector of air brakes of the Canadian National. They were subjected to a detailed cross-examination.

Correction

The testimony of C. W. Galloway, vice-president of the Baltimore & Ohio, at the Interstate Commerce Commission air brake hearing on February 27, was inaccurately reported in the *Railway Age* of March 1, page 504, in the statement that he had said that "the company is having no brake trouble on heavy grades with trains of as many as 135 cars." Mr. Galloway had testified that he had found the present air brake system in use on the freight trains on this line satisfactory in every degree and that after a great deal of attention to the subject a condition had been brought about "that has given us better than 99 per cent power control on our heavy mountain grades of our loaded and empty trains." In reply to a question as to whether the air brake has been improved so as to have kept pace with the increased train length Mr. Galloway replied that "we are having no trouble with the long trains, except to pull a draw bar out occasionally," and when asked whether that was the result of air brake operation or for some other cause he had replied: "Some other cause." At another point in the testimony, when asked about the increase in the number of cars in a train Mr. Galloway had replied: "Yes, and we are handling 135," but the reference to 135 cars was not made in connection with the general statement that there had been no trouble with the long trains and did not refer to operation on heavy grades. The condensation of Mr. Galloway's testimony has therefore resulted in an erroneous statement.

Co-Operative Bonus Plan Adopted By Southern Railway

WASHINGTON, D. C.

A NEW PLAN for co-operative effort in the relations between a railroad and its employees has been introduced in an agreement reached by the Southern with its conductors and train and yardmen, announced by H. W. Miller, vice-president in charge of operation, on February 27. The three-year wage agreement signed provides not only for an increase averaging approximately 5 per cent in the base rates of pay but establishes an additional community of interest through a plan by which the men are given an opportunity to earn a bonus through increased efficiency by helping to reduce the class of expenditures which are most directly influenced by their efforts.

The agreement applies to the lines known as the Southern Railway System lines and, after stating the base rates of pay, effective March 1, 1924, provides that such rates are to remain in effect for a definite period of three years; that is to say, until March 1, 1927, subject to the following understanding:

That for the above-named lines the ratio of the total of the following accounts:

380—Yard enginemen
382—Fuel for yard locomotives
387—Other supplies for yard locomotives
392—Train enginemen
393—Train motormen
394—Fuel for train locomotives
399—Other supplies for train locomotives
378—Yard conductors and brakemen
379—Yard switch and signal tenders
389—Yard supplies and expenses
401—Trainmen
402—Train supplies and expenses—other train expenses
415—Clearing wrecks
417—Damage to live stock on right of way
418—Loss and damage—freight
419—Loss and damage—baggage
420—Injuries to persons

to the total gross revenue has been ascertained for the year 1923 to be 21.42 per cent, which is to be known as the "test ratio." In February, 1925, the like ratio will be ascertained for 1924 in the same manner as it has been ascertained for 1923, and if, notwithstanding increases in compensation of engine and train service employees, the ratio for 1924 is not in excess of the test ratio, then the management will, in the month of February, 1926, pay to each employee represented by the conductors' and trainmen's committee, as a bonus or added compensation, one and one-half percentum of his total compensation for the year 1925; the said one and one-half percentum to be the maximum of the bonus or added payment for 1925. In the event that the ratio for 1924 is in excess of the test ratio, such excess is to be deducted from the one and one-half per cent referred to above, but in no case shall the increase in ratio do more than wipe out the bonus payment.

In 1926 the same method is to be followed, i.e., the ratio for 1925, after charging into the expenses the bonus or added payment (if any there be) is to be ascertained in the same manner, and, if the said ratio has not increased above the test ratio, the bonus for the year 1926 will be three percentum, payable in February, 1927. If the ratio so ascertained has increased above the test ratio, the amount of such excess is to be deducted from the maximum bonus rate of three per cent and the remainder (if any there be) will be the bonus rate to be applied to 1926 compensation exclusive of bonus, for payment in February, 1927. In other words, the maximum bonus for 1925 will be one and one-half per cent, and for 1926, three per cent, the percentage up to these maxima to be arrived at on basis above set forth. To illustrate:

Test ratio 21.42%
Ratio 1924 ..... 21.31%

Ratio has not increased; therefore, bonus payment maximum of 1.5% of 1925 compensation.

Test ratio 21.42%
Ratio 1924 ..... 21.67%

Ratio has increased .25%; therefore, maximum bonus decreased .25%, and bonus payment would be 1.25% of 1925 compensation.

Test ratio 21.42%
Ratio 1924 ..... 22.96%

Ratio has increased 1.54%; therefore, maximum bonus entirely wiped out and no bonus payment on 1925 compensation.

Test ratio 21.42%
Ratio 1925 ..... 21.36%

Ratio has not increased over test ratio; therefore, bonus payment maximum of 3% of 1926 compensation.

Test ratio 21.42%
Ratio 1925 ..... 21.72%

Ratio has increased .30%; therefore, maximum bonus decreased .30% and bonus payment would be 2.70% of 1926 compensation.

Test ratio 21.42%
Ratio 1925 ..... 24.42%

Ratio has increased 3%; therefore, maximum bonus entirely wiped out and no bonus payment on 1926 compensation.

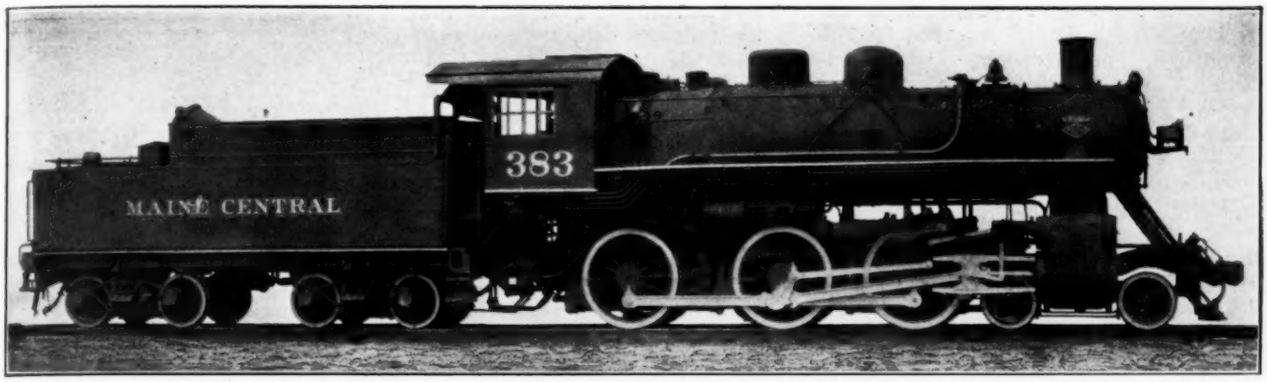
The intent and purpose of this agreement is that the new rates of pay as provided above will be made effective and accepted by the management and by the conductors, trainmen, yardmen and switchtenders for a definite period of three years, and if, as above indicated, through increased productivity, etc., they are able to keep the ratio down, then any increase during that period is to be through bonus or added payment, as above set forth, with maximum for 1925 of one and one-half per cent and maximum for 1926 of three per cent as bonus or added payment.

It is expected that this plan will give the men a direct incentive to co-operate in every way in the efforts to economize in the kind of expenditures included in the list, and it has the advantages of simplicity and practicability, as practically no additional accounting is involved except the writing of a check for each man each year and recording the amount of his bonus on a card which is already kept for the purpose of reporting to the government for income tax purposes. The plan is also easily understood.

It is anticipated that the same basis will be offered to the engine employees.

THE ENGINEERING SECTION of the National Safety Council will join with the Cleveland Safety Council, the Society of Ohio Safety Engineers, and the Cleveland Engineering Society on May 16 in a safety conference at Cleveland. The speakers will be J. W. Patterson, Dr. H. C. Davis, J. M. Woltz, F. C. Allen and F. A. Scott.

HIRAM JOHNSON told an audience in Lincoln, Neb., that the New York Central was littering its dining cars with literature favorable to the Mellon tax bill. Perhaps the railroads should show more discrimination. Or they might confine their arguments to their own affairs; or, at all events, refrain from distributing anything likely to interfere with a western radical's digestion.—*Springfield Republican.*



Ten-Wheel Lima Locomotive of 30,200 lb. Tractive Force for Passenger or Freight Service

Maine Central Purchases Ten-Wheel Locomotives

Modern Design of Medium Capacity with 63-In. Drivers Suitable for Local Passenger or Freight Traffic

RAILROAD PURCHASES in recent years have included few locomotives of the 4-6-0 type, due largely to the pressing demands for passenger power of the heavier types and to the fact that most roads were well provided with light locomotives. In order to secure large firebox and boiler capacity, most large locomotives, either passenger or freight, are now provided with trailing wheels. There are, however, many places where locomotives of the 10-wheel type are the most satisfactory motive power units. For local or heavy suburban passenger traffic where frequent and quick starting with repaid acceleration are of importance in avoiding delays in getting the train under way, for comparatively short runs with steep grades and moderate speeds, or for certain local freight traffic, the 4-6-0 locomotive is still an ideal type. For such services, ample tractive force is of more importance than ability to run at high speeds. With this wheel arrangement, the percentage of weight available for traction is high and a boiler capacity sufficient to meet the requirements can be obtained without difficulty. It, therefore, is not surprising that a number of roads are still purchasing 4-6-0 type locomotives.

An example of a modern design of a 10-wheel locomotive of medium capacity is represented by the lot of eight built by the Lima Locomotive Works in 1923 for the Maine Central. This locomotive weighs 182,000 lb. in working order, of which 136,000 lb., or 75 per cent, are on the drivers, and 46,000 lb. on the front truck. The tender weighs 137,600 lb. and has a capacity for 6,500 gallons of water and 10 tons of coal.

The rated tractive force is 30,200 lb. The cylinders are 20 in. in diameter and have 28 in. stroke. As the driving wheels are 63 in. in diameter, the speed of the locomotive at a piston speed of 1,000 ft. per min. is 40.2 m.p.h. Although not intended primarily for high speeds, they ride smoothly at speeds up to 45 m.p.h., and as the counterbalancing has been given careful attention, they may easily obtain and maintain a speed of 50 m.p.h.

The piston valves are 12 in. in diameter, fitted with Hunt-Spiller packing rings and operated by a Baker-Pilliod valve gear and a power reverse gear.

The crosshead is of the alligator type with gun iron shoes lined with babbitt. The crosshead pin has grease lubrication. Both the main and the side rods are of the I-section.

The engine truck is of the constant resistance type with cast steel bolster, 33-in. rolled steel wheels and 6-in. by 10-in. journals. The frames are of cast steel, 4 in. wide, and spaced 43 in. center to center, with single front rails. The shoes and wedges are of bronze. A cast steel foot plate is provided at the back end with pockets arranged for a unit drawbar.

The boiler is of the extended wagon-top type and is 64 in. in diameter at the front end and 70 in. outside diameter at the throat. It has 166 2-in. tubes and 26 5 3/8-in. flues, 15 ft. long over the tube sheets. The firebox is of the semi-wide, radial stayed type and is 96 1/8 in. long by 67 1/4 in. wide and has a grate area of 44.2 sq. ft. The steam pres-

TABLE OF DIMENSIONS, WEIGHTS AND PROPORTIONS

Railroad	Maine Central
Builder	Lima Locomotive Wks.
Type of locomotive	4-6-0
Service	Passenger and freight
Cylinders, diameter and stroke	20 in. by 28 in.
Valve gear, type	Baker
Valves, piston type, size	12 in.
Weights in working order:	
On drivers	136,000 lb.
On front truck	46,000 lb.
Total engine	182,000 lb.
Tender	137,600 lb.
Wheel bases:	
Driving	15 ft. 0 in.
Total engine	26 ft. 5 in.
Total engine and tender	58 ft. 5½ in.
Wheels, diameter outside tires:	
Driving	63 in.
Front truck	33 in.
Boiler:	
Type	Ext. wagon top
Steam pressure	200 lb.
Fuel	Soft coal
Diameter, first ring, outside	64 in.
Firebox, length and width	96⅛ by 67¼ in.
Arch tubes, number and diameter	4—3 in.
Tubes, number and diameter	166—2 in.
Flues, number and diameter	26—5⅜ in.
Length over tube sheets	15 ft. 0 in.
Grate area	44.2 sq. ft.
Heating surfaces:	
Firebox	141 sq. ft.
Arch tubes	24 sq. ft.
Tubes and flues	1,840 sq. ft.
Total evaporative	2,005 sq. ft.
Superheating	440 sq. ft.
Tender:	
Water capacity	6,500 gal.
Fuel capacity	10 tons
General data estimated:	
Rated tractive force, 85 per cent	30,200 lb.
Cylinder horsepower (Cole)	1,442 hp.
Speed at 1,000 ft. piston speed	40.2 m.p.h.
Weight proportions:	
Weight on drivers ÷ total weight engine, per cent	75
Weight on drivers ÷ tractive force	4.5
Total weight engine ÷ cylinder hp	126

sure carried is 200 lb. The grates are of the table pattern, rocking type, and were made to conform to the railroad company's standard design. The boiler is equipped with a Type A superheater of 26 units with a heating surface of 440 sq. ft., a Security arch supported on four 3-in. diameter tubes and a No. 8 Franklin butterfly type fire door.

The leading dimensions, weights and proportions are given in the table on the preceding page.

These eight locomotives, Nos. 383 to 390, inclusive, were received from the Lima Locomotive Works in June, 1923. Four of the engines have been used in local freight service on the K. & L. division, which is a branch line, 56 miles long, rather hilly and with crooked track. The other four have been used principally on the main line and on the Mountain division in local freight and to a considerable extent in passenger service.

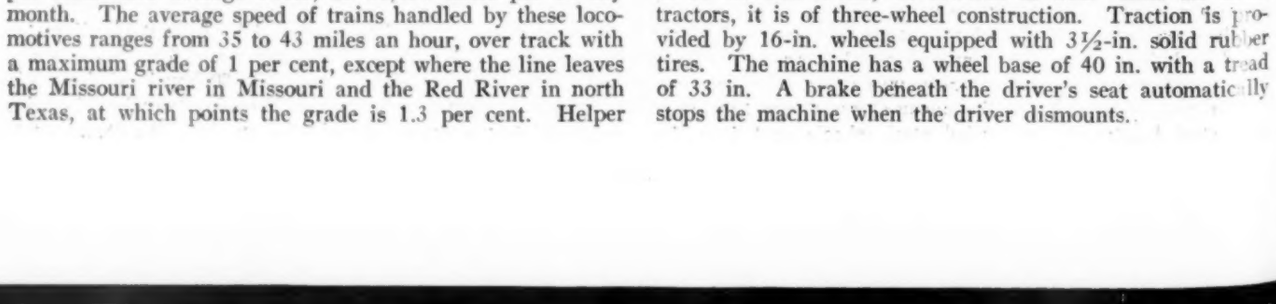
Engine 390 has been regularly assigned, since October, 1923, hauling a passenger train between Bartlett and St. Johnsbury, which includes a grade, 15 miles long, 2 per cent westbound and about the same distance, 1½ per cent, eastbound.

The engines are said to be free steamers, light on coal and water, burn their fire evenly, carry their water well, ride nicely, start their trains quickly and run well. When heavily loaded, they will keep going at a rate under three miles an hour on a good rail without slipping.

The Longest Locomotive Run

THE MISSOURI-KANSAS-TEXAS SYSTEM, which has been a pioneer in the development of long runs for locomotives in both passenger and freight service, has inaugurated a new run that is probably the longest in America. The superheated Pacific type locomotive shown in the illustration, which has a tractive force of 40,750 lb., 25-in. by 28-in. cylinders, 73-in. drivers, and carries 200 lb. boiler pressure, handles a maximum train of 15 cars on a run from Franklin, Mo., to San Antonio, Tex., a distance of 872 miles, without change. The tenders of these locomotives carry 4,000 gal. of oil and 10,000 gal. of water, and fuel oil is taken only twice en route. Lubricators and rod cups are filled with each change of locomotive crews, of which there are four on the trip.

The assignment of power to these runs includes sufficient locomotives to provide ample layovers at terminals, insuring the necessary attention to maintenance. The miles per day per locomotive average 348.8, or 10,464 miles per 30-day month. The average speed of trains handled by these locomotives ranges from 35 to 43 miles an hour, over track with a maximum grade of 1 per cent, except where the line leaves the Missouri river in Missouri and the Red River in north Texas, at which points the grade is 1.3 per cent. Helper engines are not required, however, on any of these grades with trains up to 15 cars.



Locomotives of This Class are Making 872-Mile Passenger Runs in Oil Burning Territory

A Small Industrial Tractor

WHAT IS SAID to be the smallest industrial tractor ever built is now being introduced by the Clark Tructractor Company, Buchanan, Mich. The machine, which is known as the "Duat" tructractor, is a compact three wheel, gasoline driven, mobile crane, truck and tractor. It pivots on one wheel and has a turning radius of but 52 in., so that it can readily turn around in a box car.

It will tow from 7 to 10 tons or from 1 to 20 trailers, depending on the condition of the floor or yard on which it runs. Through an ingenious device a one-ton crane may be attached to the Duat without the use of tools in less than five minutes, converting the tractor into a mobile crane. The crane attachment will lift and carry loads up to 2,000 lb. A brake device permits the load to be carried at any height up to 56 in. and it may be lowered at will. Like all Clark tractors, it is of three-wheel construction. Traction is provided by 16-in. wheels equipped with 3½-in. solid rubber tires. The machine has a wheel base of 40 in. with a tread of 33 in. A brake beneath the driver's seat automatically stops the machine when the driver dismounts.

The "Duat" Truck with the Crane Attached

Protection of Highway Traffic at Crossings*

Drastic Laws Called for; Crossing Problem Compared with the Demand for Automatic Train Control

By A. H. Rudd
Chief Signal Engineer, Pennsylvania Railroad System

THE TROUBLE with this country is that we are in too much of a hurry. The only thing that I haven't seen in a hurry recently is the Bureau of Highways of the State of Pennsylvania. I have not yet got my license tags that I applied for in December. For the next safety campaign the American Railway Association has asked for a slogan. I think the best one would be, for highway crossings, the same picture that we had last year, and then put at the bottom, "Can you beat it?" I would like to assemble, if I can, a few facts which probably you all know, but which perhaps have not been collected together, to show the seriousness of the situation that confronts us. The automobile is with us, and it has come to stay. The rabbit is a wonderful breeder, but he has nothing on the automobile manufacturers. There are over fourteen million cars in the country today; and we have got to meet the situation. Automatic train control has a very considerable bearing on this subject: the automatic stop versus grade crossing protection. The Pennsylvania Railroad System in 1921 killed two passengers in train accidents; in 1922 it killed six, five of them in one collision on a road that had been recently taken over and had no block system. Last year the road didn't kill one, and in that time—three years, eight passengers killed—there were 711 people killed at highway crossings. That is an absolute proof of the necessity of the train stop!

In 1922 there were 11,000 deaths in the United States from automobile accidents. In that year the railroads killed in collisions 72 passengers. In 1923 there were 150 people killed hunting in the State of Pennsylvania, all of which leads us to the absolute unescapable conclusion that we need an automatic train stop.

In January 13 persons were killed on State roads in Pennsylvania, and 81 others injured in auto accidents. Carelessness of automobilists on highways where conditions are *least hazardous* caused most of these accidents. Of the accidents in which pedestrians figured, six occurred when the pedestrian was walking in the same direction as the motor vehicle. Five drivers involved in accidents were intoxicated.

The Pennsylvania Railroad has been ordered to install automatic train control on three passenger engine divisions. It will cost in the neighborhood of six million dollars. To equip our whole system with train control would cost 115 millions. For this sum we can protect 57,000 crossings with flashing lights, indicating the approach of the train, the new signal recommended by the Signal Section of the American Railway Association, and still have eighty millions left for separation of grades, if we didn't have to put in train control (and if we had the money).

Three big railroad systems went through 1923 without killing a single passenger. They make, says the press report, a roll of honor to be read everywhere with respect. The Santa Fe hadn't killed a passenger for more than a year and a half, during which time it carried sixteen million people an average of 152 miles; but in 1922 that road killed 27, and in 1923, 38, a total of 65 at grade crossings. The Chicago, Milwaukee & St. Paul has operated four years without passenger fatality, but in 1922 and 1923 it killed 46 on grade crossings. The Chicago & North Western hadn't killed a passenger in two years, but during that time it killed 54 and injured 155 at grade crossings.

Each year it is thousands at grade crossings and less than 100 in collisions; yet the recent order of the Commission requires an expenditure which I think conservatively may be estimated at over $200,000,000 for putting in train control on 141 divisions.

Grade crossing elimination is not the complete answer. We have had accident after accident after we put the highway above the railroad. Drivers run off curved approaches and get on to the tracks and we hit them. If we put the highway underneath, they run into the abutment. Our statistics show that only three per cent of automobile drivers are reckless. Oculists will tell you that four per cent of the male population is color blind.

Careless Drivers; the Stop Laws

The first point of attack, as I see it, to eliminate this terrible slaughter at grade crossings, is to eliminate careless, incompetent and unfit drivers. Our enginemen run trains at, say, 50 miles an hour, and they are examined for color blindness, color perception, for heart trouble and on other points. And then we efficiency test them. How many automobilists are examined for physical defects which may cause them to lose control at a critical moment? How many are checked up on stopping at the proper places or slowing down at the proper places? There are laws in some states requiring automobiles to stop before they go over a crossing. I understand there is an effort being made in Virginia now to repeal that law as burdensome to the drivers of the automobile. It is complained that we are killing these people all the time, or letting them kill themselves, and yet they object to stopping before they cross the railroad. With the Virginia law repealed they would force the railroads to place a watchman on each crossing 24 hours a day. Let us have stringent examination of the men who imperil our lives on the highway. The State of Pennsylvania has just passed a law that provides for the examination of automobilists. I am very strongly in favor of the new law—I don't know what the examination is, but anything is better than the present loose practice. We should have a rigid examination, and re-examinations. Every time a man scratches the paint on another car, or even on his own, give him a re-examination. I have been for a long time advocating yellow tail lights on automobiles, but have had to give up because there are fourteen million cars that have red ones, and the laws of all the states require them. I advocated yellow because during the time we had our safety-first campaign last year, we had 222 gates run through. I don't know how many trains were run into. I do know that in one instance a train was stopped on a crossing on the Northern Pacific, and while standing there a Ford ran into it on the left-hand side; and while they were cleaning up the wreck, a Buick ran into the right-hand side. The conductor said it was the first time that they had ever been attacked on both flanks at once. Of the 222 gates smashed 60 per cent occurred in the day time. Of the 40 per cent at night 95 per cent were broken to the left of the red light on the gate. You see, the red light on an automobile means, in effect, turn to the left, not stop; and that is what these drivers did. But I guess

*Abstract of an address given before the New York Railroad Club.

the red tail light is with us. A sub-committee of the American Engineering Standards Committee has recommended that head lights of automobiles, instead of being white, concentrated on a spot in the road, shall be yellow, and diffused, so that instead of driving practically through a dark tunnel, watching a white light in front, the eye of the driver may function more as it functions in the daylight. For three reasons: First, a driver coming in the opposite direction is blinded by the brilliant headlight. Second, the white light will not penetrate fog because the blue rays of the white light reflect back from the fog particles; and the yellow rays do penetrate. Third, the hypnotic effect on the driver sitting back of those bright lights. I believe that many accidents where men disregarded signals have been due to hypnotism. I heard of a man driving from Albany to Schenectady with his wife, with brilliant white headlights focused on the road, and he went to sleep three times at the wheel * * * he pulled his car to the side of the road and said to his wife, "Call me in fifteen minutes"; and he dropped off to sleep inside ten seconds.

Effective Roadside Signs

But there is the problem of the people who are good drivers that are fit and yet get killed. Fifteen or twenty states have provided for the disk caution sign. In most states the state puts them up. This has been a big help to tourists, and to automobile drivers generally. Almost universally the red light is used on crossing gates to warn team traffic. There are exceptions. We have in Pennsylvania green flashing lights which mean caution, because you are coming to a street intersection where you may meet a car, and we have yellow ones which mean something else, and we have a red light at a railroad crossing, whether there is a train coming or not. So there is confusion all around. The Signal Section, A. R. A., has approved the double red flashing light, but practice is still varied. All through the West they have wigwags; they have a disk that swings and shows a red light at night. Another signal consists of a series of lights, lighting successively to simulate a red lantern swinging. We have decided absolutely against the bell. It is the poorest thing that was ever invented. It rings when it should not and does not ring when it should. If it is loud, the neighbors put sticks in it, and if it is quiet the automobile drivers do not hear it.

The Western roads will not give up the wigwag. The Eastern people conferred, and we finally compromised on the proposition for a signal which has the appearance of a horizontally swinging red light or disk. [Two red lights side by side, flashing alternately.] Fifteen or twenty public service commissions have approved it, and we are trying to get it perfected. We cannot patent it because it was invented by a syndicate—that is, a committee. We cannot copyright it because we are told by the powers at Washington that it is not a work of art, although we claim that it is. But we can use it, because it doesn't infringe any known patent, as far as the principle of the flash is concerned. Now, what we want to do is to protect this light signal by a federal law that will forbid its use anywhere except at railroads, to indicate the approach of trains. We want it protected as the red cross is protected. It is unlawful to use the red cross except for certain purposes. In Texas they use the wigwag to advertise butter and cheese. Again they set up one near a railroad and put on it "Danger! Go to John Jones for gasoline." In Connecticut flashing lights for advertising purposes have been barred from the highways. Pennsylvania will not allow any advertising matter on the state highways. If we can confine these light signals to one particular use, that of indicating the approach of a train, we shall have made a long step forward.

There is no reason why the Highway Department should not put up signs and share in the cost of protection, just as they put up signs for heavy grades, for sharp curves and for street intersections. The Public Service Commissions and the Interstate Commerce Commission should be given jurisdiction over the highway crossings just as they have over train accidents. When a person is killed at a crossing I would have them investigate the case just as they do a collision; and I would have them fix the blame and give it just as much publicity as they do a train accident, so that the people at large might know the proportion of accidents. And then I would insist that at the end of the report they be required to put in the stereotyped clause—"This accident again points to the necessity of the installation of some system of automatic control"—for automobiles. Let us have the control, instead of on the train, on the automobile.

The orders of the Interstate Commerce Commission call for hundreds of millions of dollars for a device that still is in the experimental stage, when the money could be spent to many times better advantage in protecting grade crossings. The train control idea is beautiful. It is the greatest thing you ever saw from an engineering standpoint. It will do everything but talk; but it is an economic crime as the matter stands today. Congress became impatient, and the easiest thing for the Commission to do was to say to the railroads, "Go ahead." They didn't have any responsibility except to tell the railroads to go ahead, so they told them; and I guess they are going ahead. But train control is an iridescent dream; while grade crossing accidents are a nightmare. We have got to get rid of the nightmare before we can start dreaming. The remedy, as I see it, depends upon organized public opinion.

First: Drastic examination of all drivers.

Second: Drastic enforcement of laws and rules of road.

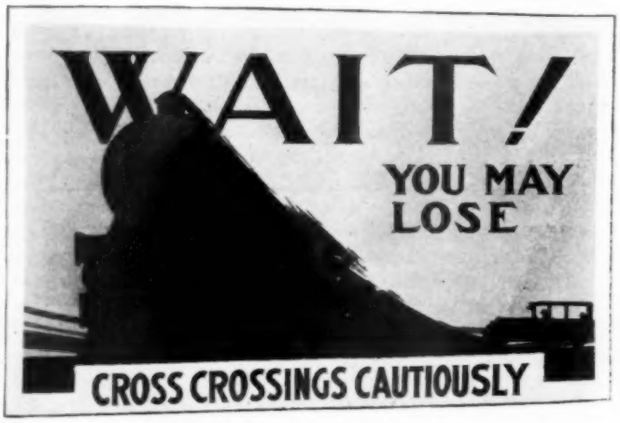
Third: Participation of national, state and municipal governments in the expense of (a) marking and protecting existing crossings, and (b) elimination of crossings or separation of grades.

Fourth: Action by such authorities to insure uniform and standardized indications of dangerous conditions.

Fifth: The prohibition of any new grade crossings over tracks where trains are run at speed.

Sixth: Elimination of the tremendous economic waste, in view of the comparatively small saving of life attained, which will result if the Interstate Commerce Commission continues to insist on the wholesale installation of experimental or inadequate train control.

Seventh: As most of these depend upon public opinion, the people should be educated, and I have already explained how I think they ought to be educated by the Commission.



Harris & Ewing

Careful Crossing Campaign Poster and Slogan Which Won $600 Prize for Brooklyn Art Student

Railroads Ask Rehearing on Train Control

Ask More Time Under First Order and Annulment of Second—Train Control Called Experimental

WASHINGTON, D. C.

A PETITION ASKING the Interstate Commerce Commission to re-open the proceeding in which it has issued orders to 94 railroads to make installations of automatic train control, to the end that the time for compliance with its order directed to 49 carriers be extended for one year to January 1, 1926, that the later order directed to the same roads and 45 additional carriers be annulled; and that modifications be made in the original order, was filed with the commission on March 3 by a committee of railway executives representing the Eastern, Southern and Western carriers, respectively, and made public by the commission on the following day. The petition was signed, on behalf of 88 Class I roads, by Samuel Rea, president of the Pennsylvania; R. N. Begien, for W. J. Harahan, president of the Chesapeake & Ohio; N. D. Maher, president of the Norfolk & Western; W. L. Mapother, president of the Louisville & Nashville; Ralph Budd, president of the Great Northern, and L. W. Baldwin, president of the Missouri Pacific.

The four roads named in the commission's orders which did not sign the petition are the Chicago, Rock Island & Pacific, whose installation has already been approved by the commission, the Cincinnati, New Orleans & Texas-Pacific, the Mobile & Ohio and the Southern.

The railroads, in the petition, take the position that no train control device has yet been installed which can properly be said to be more than an experiment, that it cannot be ascertained in advance that any of the devices, with possibly one exception, will meet with the approval of the commission if installed, that very large expenditures would be involved in complying with the order without knowledge whether the installation would be approved by the commission when completed or whether the devices will function in such a way as to be a source of safety rather than a source of danger; and that the order of January 14, 1924, directed to additional roads and also directing additional installations by the roads named in the earlier order, was issued without notice or hearing.

In addition to the extension of time the roads ask that the order be amended to reduce excessive duplication of installations of the same device and by omitting the provision stipulating approval by the commission or its representatives of each installation when completed.

After citing the provisions of the law under which the commission issued its orders, and referring to the commission's order of January 10, 1922, addressed to the principal roads and directing them to show cause why an order for installation should not be issued; to the hearings which followed, and the order of June 22, 1922, addressed to 49 roads, the petition continues as follows:

Text of Petition

IV. That thereafter each of the carriers, parties to this petition, filed with the Commission the signal plans, if any there were, of the divisions selected for such installations, statements of the number of locomotives in use upon such divisions, and prepared to carry out the other provisions of the order, in the selection of the device, or type of device, for use by each, and in such experimentation and study as would enable each of such carriers to make such a selection as would comply with the provisions of the order and as would be best suited to the needs and conditions of each carrier. That a very large number of automatic train control devices, or alleged automatic train control devices, have been invented; that a large number have been actually tested by small installations upon the lines of different carriers, both before and since June 22, 1922, the date of said order, but that no train control device has yet been installed, either upon a large or a small scale, which can properly be said to be more than an experiment; that the differences in design of the many devices which have been invented or tested, with the fact that none of such devices is interchangeable with any other; that it cannot be ascertained that, in the opinion of the Commission, any of such devices, with possibly one exception, will meet with the approval of the Commission if installed, and that delays and difficulties in the delivery of materials have occurred and will occur, have caused unavoidable delays in the compliance with the terms of said order; so that, although many contracts have been made for such installations, other contracts are on the point of being made, and installations, in many cases, are actually in course of being made, many installations, that are now being made, or that will be made, will not be completed by January 1, 1925; that very large expenditures, amounting to many millions of dollars, have been made or will be made upon such installations, and that it is uncertain whether, when such installations have been completed, they will be approved by the Commission as complying with its specifications either in design or in installation, or whether any of such devices will fulfill the purpose for which they are intended, or, in regular and daily operation, function in such a way as to be a source of safety rather than a source of danger.

V. That the installation of train control, as directed by the said order of June 22, 1922, will involve the carriers named in said order in the expenditure of many millions of dollars, the exact amount whereof cannot with accuracy be ascertained, adding largely to the expenditures upon road and equipment from which no return will be received and adding largely to the maintenance costs of each of said carriers whereby operating costs will be increased and the rate of the net returns to such carriers will be proportionately decreased.

VI. That on the 14th of January, 1924, the Commission made a further order, such order containing specifications and directions as to reports of progress and as to approval by the Commission. * * *

VII. That, as above set forth, no full installations, with possibly one exception, have been made under the order of June 22, 1922, and it is not known, and will not be known for a long period of time, what the result of the operation of train control devices upon an extensive scale will be. It is not known, and will not be known, until the completion of the several installations for which contracts have been made, or are about to be made, whether such installations will or will not be approved by the Commission, or whether the devices, or types of devices, selected and installed, will be approved by the Commission or its representatives as meeting the specifications contained in said orders. That compliance with the said order of January 14, 1924, will involve those carriers named in the order of June 22, 1922, who are parties hereto, in the expenditure of many millions of dollars, with no return; that said expenditure will add largely to the investment in the property of each said carriers used in the service of transportation and that no return will be received upon such additional investment, but that the addition to the investment in its property will have the effect of decreasing the return now received, and, in addition thereto, the cost of maintenance of said installations will be very great, and that as no revenue will be received on account of such investment the only way in which such decrease can be made up is by an increase in the passenger rates, or the freight rates, or both, of the several carriers, and that no provision has as yet been made for such increase, or for determining what the percentage of such increase shall be; and that said expenditure will result in no assurance of the securing of additional safety in the operation of the railroads of such carriers, but will involve the possibility of added danger to such operation of the railroads by reason of the installation and operation of such devices.

VIII. That the additional carriers named in the Commission's order of January 14, 1924, had no notice of this proceeding, no notice of the intention of the Commission to make said order, and that said order was made without a hearing, either of the carriers parties to the order of January 10, 1922, or of the additional carriers.

That many of such last-named carriers are carriers with small traffic, with small net revenues, or no net revenues, with infrequent trains, both freight and passenger, and with no installations of automatic signals. That upon such lines no necessity exists for the installation of automatic signals, or of automatic train control,

for the reason that traffic upon such lines is so light that no additional safety in the operation thereof would be attained by the installation of either. That the expense to many of such lines of the installation of train control, even upon a single division, is so great in proportion to their revenues, either gross or net, if there be any net, as to bring such roads perilously near bankruptcy, and that upon many of such roads the need is not for the installation of train control, but for capital to make needed improvements.

That the requirement for the installation of train control and for approval of such installation by the Commission, after completion thereof, deprives the carriers named and each of them of the power of deciding whether such installation should be made, where such installation should be made, and how such installation should be made in such a way as to suit the needs of each particular carrier.

WHEREFORE, your petitioners pray:

I. That this proceeding be reopened, and a rehearing granted before the full Commission, to the end that the order of June 22, 1922, be amended by

1. Extending the time for compliance therewith to January 1, 1926.

2. Reducing excessive duplication of installations of the same device at great capital expense until further experience and experimentation has solved the question of interchangeability and effect on capacity for moving traffic, as well as the further development of the appliances from the present experimental stage.

3. Striking out from said order the provisions for approval, by the Commission or its representatives, of each installation when completed.

And your petitioners further pray:

4. For a reopening of this proceeding and for a rehearing before the full Commission respecting the order of January 14, 1924, to the end that the said order may be annulled.

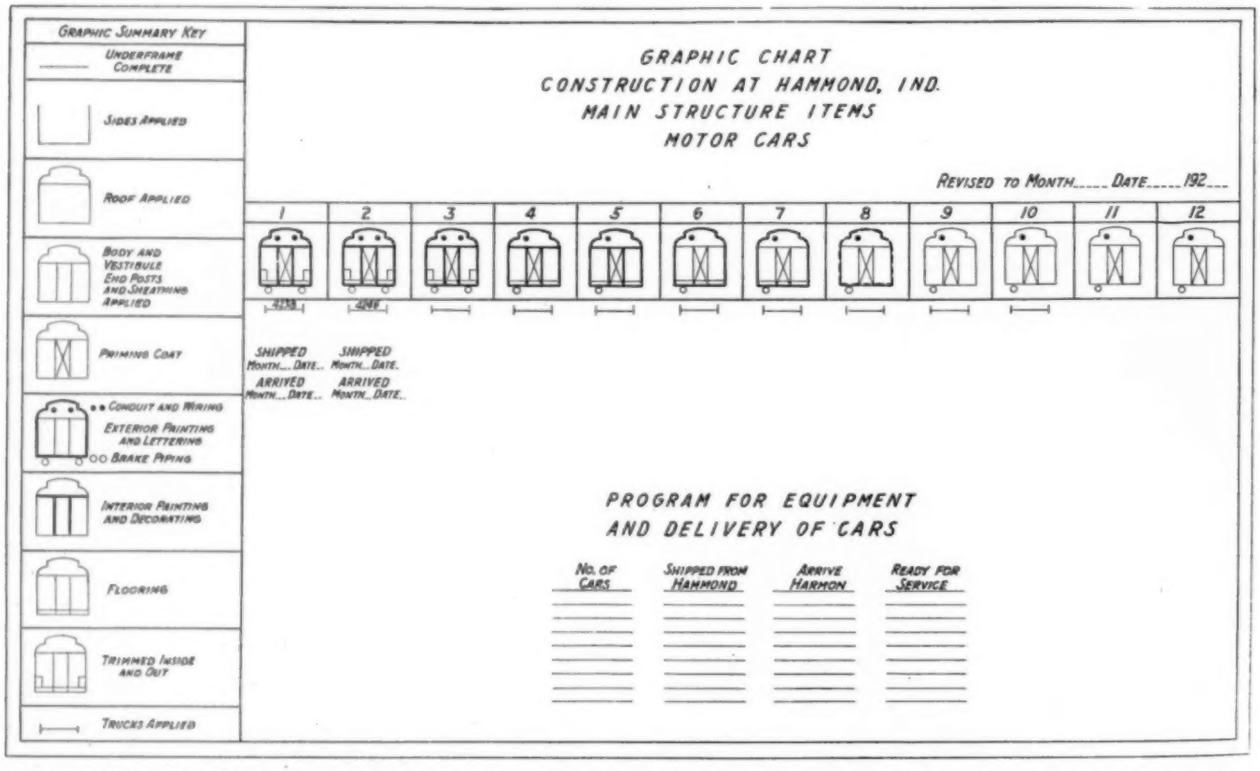
Graphic Method of Checking Car Construction

A GRAPHIC METHOD of checking a car construction program with the actual construction as it proceeds from day to day is being used in the electrical department of the New York Central. The method is simple and effective as all of the data are shown on a single chart, by means of which the status of construction of an entire order of cars can be seen almost at a glance.

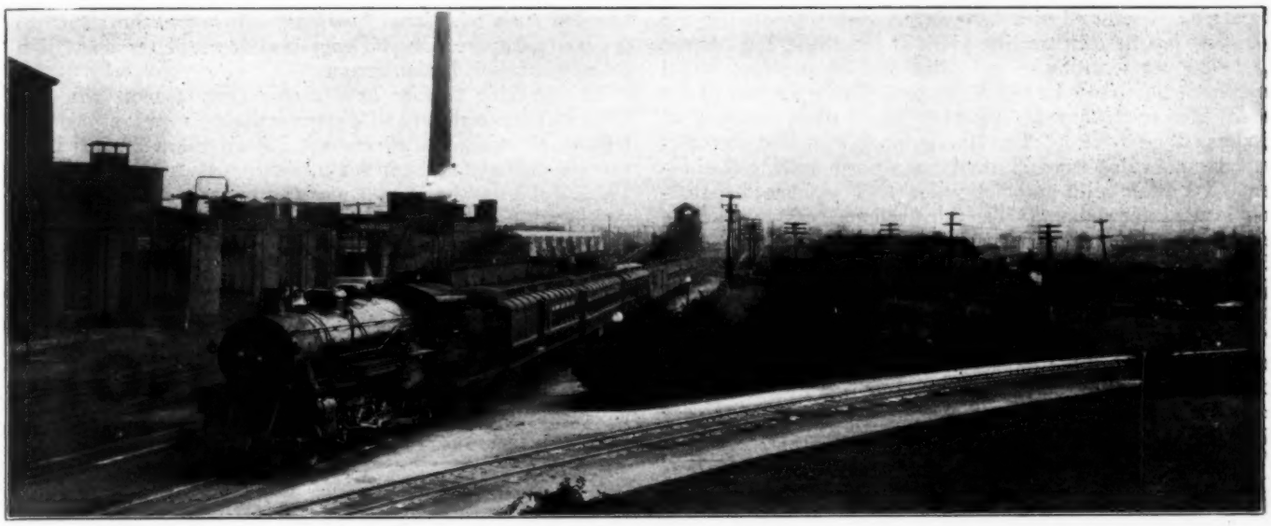
At the left of the chart is a key of the symbols used and across the face of the chart are numbered squares; one for each car of a given order for cars. At the present time, an order for 30 multiple unit electric cars is being built at Hammond, Ind., and the cars when completed are shipped to Harmon, N. Y. The chart used here shows only 12 cars and is reproduced only to show the method.

The inspectors at Hammond, Ind., send reports of work done every day to the New York office. These reports are turned over to a draftsman who records them graphically on the chart. For example, the chart as here reproduced shows that cars No. 11 and 12 have underframes completed, sides and roof applied, body and vestibule end posts and sheathing applied, have been covered with a priming coat of paint, and work on the conduit wiring and brake piping is in progress, but the cars are still standing on shop trucks. Cars No. 9 and 10 are in the same condition as 11 and 12 except that the trucks have been applied. The heavy dotted line on No. 8 indicates that the exterior painting is under way. Nos. 6 and 7 show the addition of flooring and completion of exterior painting and lettering. On cars No. 4 and 5 the interior painting and decorating have been completed. Car No. 3 has been trimmed inside and out and the brake piping and conduit wiring have been finished, thus completing the car ready for shipment. Cars No. 1 and 2 have been shipped, the shipping and arriving date being recorded below the diagram. The car number is shown on the chart above the truck symbol.

The chart is posted on the wall as a bulletin. In order to make the different steps of construction more distinctive, the exterior painting is shown in green and the interior painting is shown in red instead of by a heavy line. For purposes of easy comparison the program for the shipment and delivery of cars is shown at the bottom of the chart.



Portion of Chart Used, Showing the Key, Location of Equipment Program and Enough of the Cars to Illustrate the Method of Checking

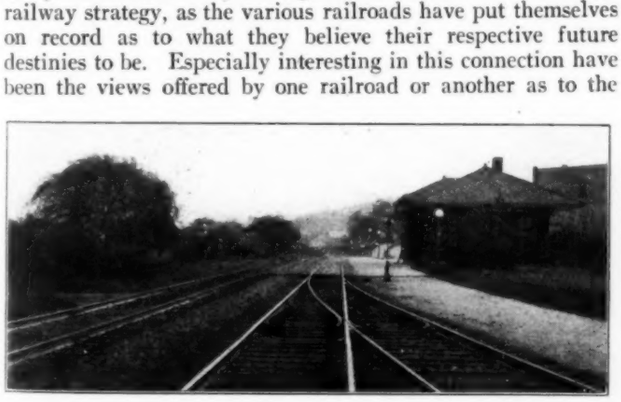


Shops at East Salamanca, N. Y. New Mechanical Ash Handling Plant Shown to Left of Coal Trestle Was Completed in 1923 and Cost $155,000

Buffalo, Rochester & Pittsburgh Improves

Earns 6.55 Per Cent on Stock—Makes Improvement in Already Good Physical Condition

THE INTERSTATE COMMERCE COMMISSION hearings in connection with the plan of railway consolidation have brought out much useful information about the country's railway transportation system. They have similarly introduced many sidelights on what used to be termed railway strategy, as the various railroads have put themselves on record as to what they believe their respective future destinies to be. Especially interesting in this connection have been the views offered by one railroad or another as to the



Neat Passenger Stations and Station Grounds Are the Rule

position of its neighbor and its opinion as to what would take place were the neighbor joined with it or put in a group competitive with it. The Buffalo, Rochester & Pittsburgh received in this connection marked tribute to its earning power and strategic location. Consolidation with the Buffalo, Rochester & Pittsburgh was desired by several carriers. The hope was expressed by roads in no less than four of the tentative groupings that their particular groupings should include the Buffalo, Rochester & Pittsburgh.

The Buffalo, Rochester & Pittsburgh is a small road in highly competitive territory. Strategic location and efficient operation have enabled it to maintain an enviable position among its larger and stronger neighbors. It is not without peculiar interest that the property is frequently referred to by those who oppose wholesale consolidations. Such people point out that its present efficiency and ability to give service compare only too favorably with that of larger systems and might indeed be lost were the road included in a grouping of more extensive mileage.

Coal Traffic Predominates

The company's lines serve a bituminous area in central Pennsylvania, extending northward from that area to Rochester, N. Y., and to Buffalo to form a Y, the upper stems of which meet at Ashford, N. Y. There is an important line extending eastward to Clearfield, Pa., and trackage rights over the Baltimore & Ohio from Butler, Pa., give access to Pittsburgh, Pa., and to New Castle, Pa. Coal normally constitutes about 60 per cent of the road's total tonnage. The predominating movement is northbound, the larger share to Rochester. At Maplewood, just south of that city, a large volume is turned over to the New York Central for movement to western and northern New York points, or possibly to New England. A sizeable tonnage is delivered via the car ferry line, jointly controlled by the Buffalo, Rochester & Pittsburgh and the Canadian National, running across Lake Ontario for movement to Canadian points. Much moves by boat lines to Ogdensburg, N. Y., Montreal, Que., and other points on Lake Ontario or the St. Lawrence river. At Rochester and Buffalo alike there is considerable coal intended for local consumption. Much of the coal moving via Buffalo is carried on to Black Rock and there delivered to the Canadian National for use in Canada. At Clearfield, Pa., the Buffalo, Rochester & Pittsburgh turns over to the New York Central a large volume of coal which moves via Williamsport, Pa., to points on the Reading and Jersey Central. Ordinarily about 40 per cent of the coal mined along the road is railroad fuel coal.

The main line is double track from Punxsutawney, Pa., north to Ashford, N. Y., where the Buffalo and Rochester lines diverge, and there is also double track on the latter line between Scottsville and Rochester. Rail of 100-lb. weight is

standard. Creosoted ties have been used since 1910; the company has its own treating plant at Bradford, Pa. About 75 to 80 per cent of the main line and 65 per cent of all track now has creosoted ties. Practically 100 per cent of the main line track has tie plates. The ballast consists of cinders, stone or slag. The line is block signalled throughout, the main line from Punxsutawney north both to Rochester and Buffalo with automatic block. Telephone dispatching is used throughout. The illustrations with this article will supplement the evidence herein contained to the effect that the Buffalo, Rochester & Pittsburgh is a property of high physical standards.

Financially, the Buffalo, Rochester & Pittsburgh is in the enviable position of having no maturities of funded debt to meet, outside of those on car trusts, and on a government loan of $1,000,000 maturing in 1926, prior to 1937. The road has paid dividends on its preferred stock in every year since 1898, the rate having been 6 per cent since 1901. Dividends on the common stock have been paid in every year since 1901 at 4 per cent or better, the average being between 5 and 6 per cent. Except in 1921 and 1922 the dividends have been earned with a wide margin and as a result the company has been able to make large appropriations for improvement to the property out of earnings. The balance sheet for December 31, 1923, showed a free surplus of $4,277,419.

Marked Progress of 1923

The year 1923 was one of marked progress for the property. It followed, however, two extremely lean years, traffic and earnings having suffered in 1921 from the industrial depression of that year and in 1922 from the cessation of coal operations due to the coal strike. The year 1923 might have been even better than it was but for the fact that the road's coal area is largely unionized. The union operators apparently suffered somewhat from the competition of adjacent non-union areas and this situation was reflected in Buffalo, Rochester & Pittsburgh gross income. However, the total gross revenues were the greatest for any year in the company's history although only slightly greater than in 1920. The tonnage of all commodities other than coal exceeded all previous records.

In 1921 and 1922 the property operated at a deficit and the dividends were paid out of surplus. In 1923 the road had a surplus after dividends of $301,499, which amount was not up to the normal that the company usually earns over its dividend requirements. One of the most important reasons for this situation was the heavy charges for maintenance—notably maintenance of way. Comparisons of 1923 with the preceding year are not entirely adequate by reason of the marked change in the road's volume of business as between the two years. The degree of contrast is shown in that revenue tonnage moved in 1923 was 44.79 per cent in excess of that moved in 1922. Revenue tons one mile were 48.85 per cent in excess and total freight revenues 34.41 per cent.

Total operating revenues in 1923 totaled $22,024,651 as compared with $16,746,506 in 1922, an increase of $5,278,145. Operating expenses totaled $20,175,269 as compared with $16,332,659 in 1922, an increase of $3,842,610. The percentage increase in operating expenses was 23.53. It is in the somewhat peculiar manner that this latter increase was made up that a large part of the property's story for 1923 is to be found. First, take transportation expenses. These total $8,433,139 in 1923, which was an increase over 1922 of 25.67 per cent. The ratio of transportation expenses to total operating revenues was 38.29 per cent, the lowest transportation ratio which the company has reported since 1916. The Buffalo, Rochester & Pittsburgh has a known capacity for handling much more business than it handled in 1923. The ratio would presumably have been still lower had it handled such additional business. However, the return to pre-war transportation efficiency insofar as the transportation ratio indicates it is significant.

The striking feature in the operation of most roads in 1923 was the marked and disproportionate increase in maintenance of equipment expenses. For all Class I roads there was shown an increase in maintenance expenses in 1923 over 1922 of 17.1 per cent, whereas the increase in expenses for maintenance of way was 10.1 per cent and in transportation expenses 8.0 per cent. The Buffalo, Rochester & Pittsburgh showed for 1923 over 1922 an increase of 8.83 per cent in maintenance of equipment expenses, but no less than 63.63 per cent in expenses for maintenance of way.

Small Increase in Equipment Maintenance Expenses

It is not difficult to determine why the company should have had an increase of only 8.83 per cent in its maintenance

The Buffalo, Rochester & Pittsburgh

of equipment expenses in 1923 over 1922 while all the Class I roads showed an increase of 17.1 per cent. The expenses for equipment repair were heavy in both years, particularly as relates to cars. The Buffalo, Rochester & Pittsburgh started 1922 with 20.3 per cent of its cars in bad order and reduced that figure to 11.2 per cent at the end of the year. At the end of 1923, the bad order car percentage was 6.9 which means that such deferred car maintenance work as was necessary was spread over the two years.

It will be found in the case of most roads that maintenance of equipment expenses were expanded in 1923 because of heavy locomotive repairs, resulting mainly from the conditions of the 1922 railway shopmen's strike. The Buffalo, Rochester & Pittsburgh was not required to engage in such an elaborate repair program. It has a remarkably good locomotive condition prior to the shop strike. At a time when all roads were reporting an unserviceable locomotive percentage of 19.9 per cent, as was the case on June 15,

1922, the Buffalo, Rochester & Pittsburgh figure was only 11.9 per cent.

The road was one of those which settled with its shop employees and today is understood to have a good labor condition in its shops. Of course, the strike cost the road money, as it did all roads. At the end of the year, however, when the locomotives held for repairs requiring over 24 hours on all roads totaled 21.1 per cent, this road reported the extraordinarily low figure of 5.2 per cent. Deferred locomotive maintenance, therefore, was no problem for the Buffalo, Rochester & Pittsburgh in 1923 and its equipment maintenance expenses were not, therefore, burdened. On January 1, 1924, the road had 6.2 per cent of its locomotives held for heavy repairs, one of the lowest figures reported for the whole country at that time. These details explain, therefore, why the road should have had an increase of only 8.83 per cent in its equipment maintenance expenses even with an increase of about 49 per cent in its ton-miles while other roads had an increase of 17.1 per cent with a much smaller proportionate increase in traffic.

Ratio to Operating Revenues

	1923	1922	1921	1920	1917
Maint. of way	17.77	14.28	13.75	16.58	9.71
Maint. of equipment	32.14	38.85	34.18	31.05	27.00
Traffic	1.40	1.42	1.50	1.03	1.28
Transportation	38.29	40.07	43.33	45.98	38.82
Operating ratio	91.00	97.53	96.34	97.21	79.32

Large Program of Improvements

Maintenance of way expenses on the Buffalo, Rochester & Pittsburgh in 1923, totaled $3,913,515 or 17.77 per cent of total operating revenues and 63.63 per cent in excess of the charges to the same account in 1922. The annual report states the reason for this unusually heavy charge to be as follows: "Extraordinary expenses were incurred this year in connection with the numerous improvements made and in overcoming deferred maintenance. As a result your property now is in good condition for handling a maximum tonnage." It is evident from the figures that the Buffalo, Rochester & Pittsburgh followed a very liberal policy in maintenance and betterment work in 1923. The amount of work done on the track compared as follows:

	1923	1920	1917
New rail—gross tons	15,316	10,576	6,147
Stone and slag ballast—net tons	120,467	61,176	51,571
Main and side track ties	144,454	133,794	117,982

The road's owned and leased main line totals about 460 miles, of which at the beginning of 1923, 249 miles had 100 lb. rail; this was increased to 290 miles at the end of the year. There are 129 miles of second track, 54 of which had 100 lb. rail at the beginning of the year and 73 at the end.

The road embarked in 1923 on an extensive program of betterment work, there being a net charge for additions to property as follows:

Additions to property (net):	
Road, including a two-mile extension of Jacksonville Branch to reach new coal operations	$1,382,926
Equipment, including 30 new locomotives	1,848,086
General expenditures	6,694
Improvements on leased lines, including strengthening of bridges between Punxsutawney and Echo (on Allegheny & Western) for operation of heavy Mallet locomotives	399,311
Total betterments	$3,637,017

Important items in this program included the charges resulting from increased weight of rail and increased ballast, strengthening steel bridges (mostly on the leased Allegheny & Western between Punxsutawney and Butler) and replacing bridges, trestles and culverts in permanent form on other parts of the line. A large sum was spent for yard extensions notably at Cloe, Pa. Expenditures for shop extensions were made at a cost of $47,000 and $60,272 was spent for new machinery and tools. A new mechanical ash handling plant was put in at the East Salamanca, N. Y., shops, shown in one of the illustrations, at a cost of $155,000. A two-mile extension of the Jacksonville, Pa., branch, called for a sizeable expenditure.

A View of Buffalo, Rochester & Pittsburgh Line Near Cloe, Pa., Showing One of the New Bridges Constructed in 1923

During the year the road received 30 new locomotives making an addition to the road's total motive power such that the average tractive effect on locomotive owned on December 31, 1923, was 49,700. The increase over 1914 is striking, amounting as it does to 14,918 lb. per locomotive or 43 per cent. The road owns a total of 298 locomotives, 211 of which are equipped with superheaters.

Ten new passenger cars were received, these finally permitting the use of steel equipment entirely on all passenger trains.

It is a matter of peculiar interest that no new freight carrying cars were received during the year. There are, however, 50 new caboose cars. The Buffalo, Rochester & Pittsburgh has always been noted for its large amount of freight equipment. This has been recognized for many years as one of the most important assets which has permitted the property as a small road to hold its own in its highly competitive territory because car supply has seldom proved a

serious problem to coal mines in its territory. In 1923, the road had a credit per diem balance of no less than $1,500,000. It has received only 800 new freight carrying cars in about 10 years, these having been standard cars allocated to it during the period of federal control.

At one time the road owned about 35 freight cars per mile of line. As retirements have taken place without replacements this figure has been reduced to 30 which even is still a high average. As a matter of fact the aggregate carrying capacity of the road's freight cars at the end of 1923 was 4.34 per cent less than in 1914. When it is realized that the per diem credit of $1,500,000 would be almost equivalent to 10 per cent on both issues of the company's stock it will be realized that the road is favored indeed from the standpoint of car supply.

Speaking more generally the foregoing details will evidence that the Buffalo, Rochester & Pittsburgh ended the year 1923 in even much better physical shape than it began it. Unfortunately the traffic was not forthcoming to permit of realization on the improvements before the close of the year in which they were made. The road did, however, show its earning power because even under the conditions met with it succeeded in meeting the dividend requirements handily with sufficient net to equal 6.55 per cent on its total outstanding combined preferred and common stock. Much less will have to be spent for maintenance in 1924 than was spent in 1923, in addition to which increased operating economy may be expected because of the many improvements to physical plant which are effected with that end in view.

Comparison of results in 1923 with those of 1922 follow:

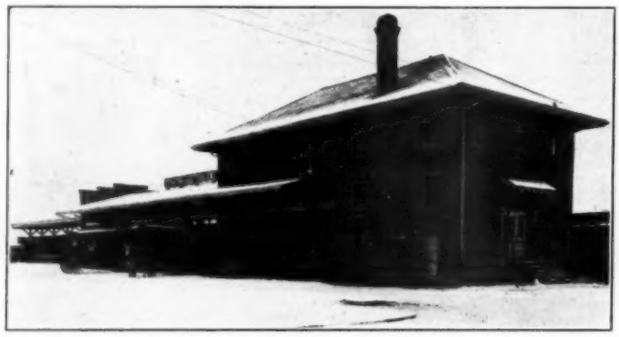
	1923	1922
Freight revenues	$19,310,382	$14,366,438
Passenger revenues	1,762,856	1,652,355
Total operating revenues	22,024,651	16,746,506
Maintenance of way	3,913,515	2,391,728
Maintenance of equipment	7,079,622	6,505,106
Transportation expenses	8,433,139	6,710,688
Total operating expenses	20,175,269	16,332,659
Net operating revenue	1,849,382	413,817
Total operating income (after taxes)	1,447,495	42,043
Non-operating income (including per diem)	2,116,280	1,169,300
Gross income	3,563,775	1,211,343
Net income available for dividends	1,081,499	def. 1,191,165
Dividends (preferred 6; common 4 per cent)	780,000	780,000
Surplus	301,499	def. 1,971,165

AT THE annual meeting of the Transportation Club of Peoria, Ill., O. F. Becker, assistant general manager of the R. Herschel Manufacturing Company, was elected president; V. V. Boatner, president of the Peoria & Pekin Union Railway, was elected first vice-president; Jacob Younge, a director, was elected second vice-president, and O. B. Eddy was re-elected secretary-treasurer.

Business Men Build Freight House for the Erie

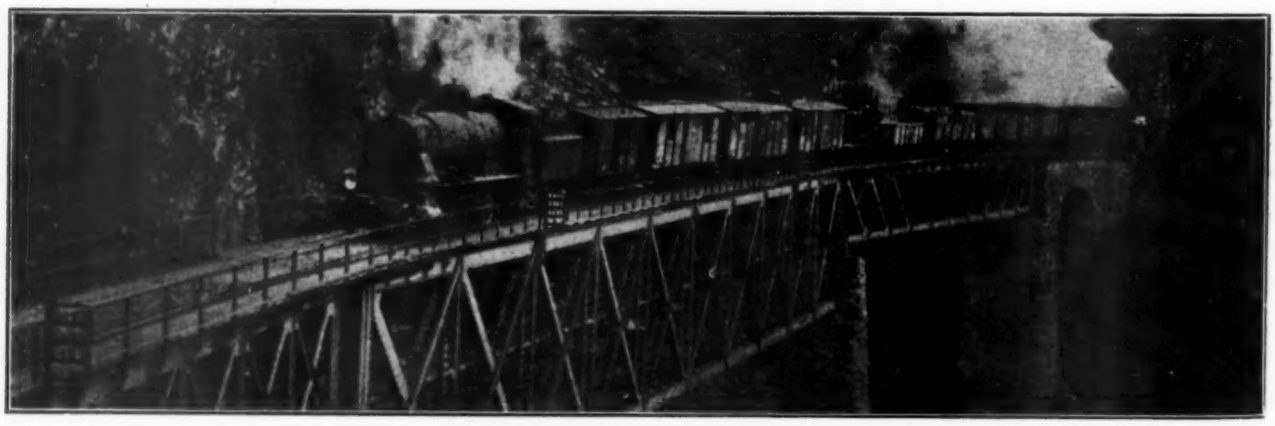
A STRIKING ILLUSTRATION of the growing spirit of co-operation between the public and the railroads is to be noted in the construction of a freight house for the Erie at Meadville, Pa., with money raised by the business men of the town. The plan under which this was accomplished is not to be understood as representing a charitable undertaking on the part of the people of Meadville, but comprises a thoroughly businesslike plan whereby the citizens paid for the building which the railroad has leased at a rental that insures a fair return to the investors.

Following a fire in 1914 which destroyed the old freight house, Meadville has been served by a freight house consisting of several box car bodies which were erected as a temporary expedient and which the railroad found it impossible to replace by a permanent structure. This arrangement obviously was not to the liking of Meadville, and in 1921 the Chamber of Commerce of that city appointed a committee to study the problem with the result that the Meadville Terminal Company was organized and sufficient money raised by the issue of stocks and bonds to erect a modern freight house of adequate size to take care of the growing needs of the community. The building was erected in accordance with plans and specifications supplied by the railroad company, which also furnished a building inspector.



The Railroad Has Leased This Building from the Meadville Terminal Company

The railroad has taken a long time lease on the new freight house at a rental sufficient to pay a return on the investment and has the privilege of purchasing the building at any time at its original cost. It is also obliged to purchase the building at the expiration of a 20-year period.



A Freight Train in the Austrian Tyrol

General News Department

The Illinois Central is to stamp its initials on its highway crossing signs, so that travelers on the highways may identify the railroad. The letters "I. C. R. R." will be stencilled on the supporting posts.

The Interstate Commerce Commission has granted the petition of the Bessemer & Lake Erie to be exempted from the provisions of the order of January 14 requiring a large number of roads to instal automatic train control.

A southbound express train of the Pennsylvania Railroad was derailed near Lake Roland, seven miles north of Baltimore, on March 2, and one passenger was killed. Three other passengers and one trainman were injured. One express car and one passenger car were overturned and narrowly escaped falling into the lake.

Six hundred thousand tons of rock was recently dynamited from a mountain near Lakeside, Utah, with one charge of 301,200 pounds of explosive. The rock will be used for ballast by the Southern Pacific. In placing the charge of explosive, 4,000 ft. of tunnels were drilled, the work requiring nearly six months.

Employees of the Detroit, Toledo & Ironton have received interest for November and December on their investment certificates, issued by the railroad company, and the amount is equal to a rate of 12 per cent per annum. The number of employees holding these certificates now totals 585, and their aggregate investment is $55,406.

The National Safety Council (168 North Michigan avenue, Chicago) announces that the "Pacific Safety Conference" will be held at the St. Francis Hotel, San Francisco, on April 7, 8 and 9. Three sessions will be devoted to industrial safety and health and the fourth to public safety; and there will be a banquet on the evening of April 8.

Revocation of the charter of the Arkansas Short Line Railroad Company which operates between Truman, Ark., and McDonald in Poinsett county, is called for in a suit which was instituted on February 29 by the Arkansas Board of Railroad Incorporators. The Cairo, Truman & Southern railroad company which operates between Truman and Weona brought the petition before the board.

The Ensley Southern Railway, heretofore operated by the Southern Railway Company, is now operated independently, according to a statement made on behalf of the Southern at Montgomery, Ala., last week, the change having taken effect on January 1. The Ensley Southern is 24 miles long from Ensley, Ala., westward to Maxine. The timetable shows one passenger train each way daily.

The law requiring automobiles to be stopped before passing over a railroad crossing "has reduced crossing accidents at least 75 per cent." This is quoted from a statement made by Robert Scott, director of safety of the Atlantic Coast Line and refers presumably to conditions in the state of North Carolina. Mr. Scott, speaking in Georgia, recommended the passage of a stop law in that state.

The Kansas City, Mexico & Orient is to be sold in Wichita, Kan., on March 27, and reports indicate that several bids will be received. Inquiries are being received by Ben F. McLean, special master, who is in charge of the sale. Frank Kell, president of the Clinton & Oklahoma Western and the Wichita Falls & Southern, both of which operate in Texas and Oklahoma with Orient connections, is said to be interested.

The Gainesville & Northwestern Railway has been authorized by the Georgia Public Service Commission to discontinue the operation of passenger trains until June 1. The receiver in charge of the road hopes by that time to be in a position to re-establish passenger service for the summer vacation season. The last time table called for one train each way daily between Gainesville, Ga., and Robertstown, 37 miles.

The Central Railway Club, Buffalo, N. Y., holds its next meeting at Hotel Statler on Thursday evening, March 13. The discussion will be on recommended changes in rules of interchange, with papers by W. B. Errington, agent of the New York, Chicago & St. Louis and R. A. Munsch, special agent of the Lehigh Valley. Mr. Errington will discuss promptness in furnishing daily reports and Mr. Munsch will read a paper on expediting cars which have to be held for billing.

The New York Central and ten other railroads running trains across the Canadian border have filed suit in the supreme court of the District of Columbia asking for an injunction to restrain the Treasury Department from carrying out an alleged purpose to refuse admission into the United States of freight trains crossing the border between 5 p.m. and 8 a.m., and on Sundays and holidays, unless the railroads pay the additional charge for customs inspection at night or on holidays.

New England Railroad Club—Annual Meeting

The New England Railroad Club will hold its annual meeting at which officers for the ensuing year will be elected and reports of present officers presented at the Copley-Plaza Hotel, Boston, on March 11. At the conclusion of the business session of the club, W. S. Price, special representative of the Tidewater Oil Sales Corporation will present a motion picture called "Development and Processing of Oil."

W. P. Richardson Returns

W. P. Richardson, formerly mechanical engineer of the Pittsburgh & Lake Erie and later connected for several years with the Bureau of Valuation of the Interstate Commerce Commission, has just returned from China, where he has for the past year acted as mechanical assistant for the Ministry of Communications at Peking. F. H. Clark, with whom he was associated, expects to remain in China for a considerable period, returning, however, for a visit to this country next year. Mr. Richardson is temporarily making his headquarters in St. Paul, Minn.

Increase in C. P. R. Earnings

A notable showing was made in earnings by the Canadian Pacific Railway in the month of January which yielded the highest net earnings since January, 1921. Net earnings showed an increase of $140,373 over the same month in 1923. Earnings show the usual seasonal decline, January and February being the smallest months of the year. Gross returns for the first three weeks of February have been 13.5, 24.7 and 16.4 per cent., respectively, ahead of the corresponding periods of last year.

Opening of C. N. R. Radio Broadcasting Station

Sir Henry Thornton, president of the Canadian National, spoke in Ottawa on February 27 to a large number of the people of Canada through the large radio broadcasting station just installed in this city by the C. N. R. "This year," said Sir Henry, in inaugurating the radio service, "I want $30,000,000 from the Canadian National Railways, and I believe if we all roll up our sleeves and put our backs into the work we shall get it. The returns for January are just in. We have net earnings of practically $500,000, as compared with a deficit

last year of over $500,000. True, net earnings of half a million a month do not represent a very large sum, but there is this significant feature about it, last month was the first January for a good many years that we showed any net at all."

"Our chief objectives," said Sir Henry in conclusion, "must be a constant and alert effort for the improvement of our service, eternal vigilance in securing traffic, a high degree of courtesy to the public from whom we derive our revenue, and loyalty and fidelity to the company and to the Dominion."

Society of Terminal Engineers

Charles H. Newman, secretary, 36 Warren street, New York City, announces the next regular meeting of the Society of Terminal Engineers to be held at 29 West 39th street, New York City on Tuesday evening, March 11. W. L. Marvin, of the American Steamship Owners' Association, will speak on "American Shipping at the Port of New York." At its meeting to be held on April 8, the Society expects to listen to a description of the Hudson River Connecting railroads, and its effect on the Albany gateway, by George W. Kittridge, chief engineer of the New York Central.

Capitalization of Canadian Railways

The total capital account of all Canadian railways is $2,601,339,382, according to an authoritative estimate, and of this total $415,118,319 is the cost of the original government roads, and the total also includes $26,943,932 as the liability to lines owned by the provinces. It does not include the advances made to the Canadian National group which now amount to over $800,000,000. The total of bonds outstanding, apart from Dominion bonds, is $743,653,809, of which $404,601,953 bear either federal or provincial guarantees. Ordinary stocks have an aggregate of $884,830,216, while debenture stocks amount to $530,793,106. Dividends average $30,000,000 annually.

Coaling Stations Shipped to Australia

Eleven cars, containing equipment for nine re-inforced concrete locomotive coaling plants to be erected in Australia, were shipped late in February by the Roberts & Schaefer Company, Chicago, from its shops at Champaign, Ill., over the New York Central Lines to New York for shipment by way of the Panama canal.

The coaling stations will be located along the South Australian Railway at Mile End, Peterborough, Adelaide, Karwonda, Port Adelaide, Port Pirie, Wolseley, Cockburn and Port Lincoln. The largest will be of 300 tons' capacity and will include sand-handling facilities.

General Manager Nash Entertains Officers and Employees

Twenty-five hundred officers and employees of the Minneapolis & St. Louis were entertained by E. E. Nash, general manager, at a party in the Minneapolis armory at Minneapolis, Minn., on February 16. Invitations to attend the party, which was given at Mr. Nash's expense, were sent to all officers and employees of the company in Minneapolis and St. Paul. A feature of the entertainment was the showing of a motion picture of the guests at their daily work.

It was Mr. Nash's purpose, in arranging the entertainment, to establish closer and more friendly relations between the officers and the employees. This idea was carried out by the sub-titles of the scenes in the motion picture, which were written by Mr. Nash. One of these read: "The Minneapolis & St. Louis Railroad operates 1,650 miles of main line through the garden spot of the world. Broadcasting the good qualities of our railroad and its employees is a splendid way to boost. There is no progress without labor. We need our railroad and our railroad needs us."

Santa Fe Employees' Stock Interest

A total of 1,047 shares of stock of the company had been purchased on December 31 by employees of the Atchison, Topeka & Santa Fe since the inception of the plan last spring whereby employees were permitted to purchase either preferred or common stock on an installment basis. Of this amount 625 shares were common and 421 shares were preferred. The stock purchased with full payments totaled 348 shares of common and 235 shares of preferred. The remainder was obtained on deferred payments extending over 10 months. The plan was described in the *Railway Age* of April 14, 1923, page 961.

The North Carolina Stop Law

In the State of North Carolina at highway crossings of the Southern Railway, the number of persons killed by trains in the last six months of 1923 was four, and of injured, 11; as compared with 6 killed and 24 injured in the first half of the year, and larger numbers in half years before that. These figures are reported by the railway company in connection with a note on the law of North Carolina requiring drivers of automobiles to stop before crossing railroad tracks; and the law is given credit for the diminution in the number of disasters at crossings. The number of motor vehicles registered in North Carolina last year was 247,612 as compared with 182,060 in 1922.

Pennsylvania Pensions

Retired employees of the Pennsylvania Railroad System received a total of $3,698,636 in pensions during 1923, a sum exceeding the total of the previous year by $383,972. There was a net increase of 1,083 in the names on the "Roll of Honor."

The pension plan of the Pennsylvania Railroad System was inaugurated January 1, 1900, and in 24 years the company paid out a total of $32,187,868 in pension allowances, and has retired a total of 16,406 employees. Of these 7,376 are now living and receiving pensions. There are at present 31 on the list who are 90 years old or older. An analysis of the records shows that the typical employee renders about 40 years of active service. The pension allowances are paid entirely out of the company's funds, as voluntary gifts in recognition of long and faithful service. In addition, all employees who desire to do so are now afforded an opportunity to increase their pensions by becoming members of the Employees' Provident and Loan Association, and contributing specified amounts.

Indictments for Manslaughter

The general superintendent of the Long Island Railroad, three members of the railroad police and a crossing watchman have been indicted in the County Court on charges of manslaughter in the second degree in connection with a fatal accident at a highway crossing. George Kroder and his wife were killed when an automobile in which they were riding was struck at a crossing at Laurel Hill, on the night of January 22. The defendants were accused of negligence in permitting the gates at the crossing to become out of repair and allowing the Kroder automobile to cross in front of a train without having proper warning of its approach. The superintendent is charged specifically with failing to provide additional protection at the crossing when the gates became out of order. The chief of police is charged with negligence in the

management of the men under him, and a captain is charged with negligence in the hiring of men who are not competent. Each of the accused was held in $10,000 bail.

Western Roads Handle Large Retorts

Two retorts, 8 ft. by 124 ft. and weighing approximately 125 tons each, were shipped recently from Alliance, Ohio, to Orange, Tex., over the New York Central, the Illinois Central, the Chicago, Rock Island & Pacific and the Gulf Coast Lines. Five cars were used to transport each tank, two of which carried the load, while the other three, the first, third and fifth, were idlers. The tanks were manufactured by Reeves Brothers Company, Alliance, for

Retort 124 ft. Long Requires Five Cars

the Texas Creosoting Company, to be used in the treatment of ties. This shipment moved over the New York Central from Alliance, to Kankakee, Ill., and over the Illinois Central from Kankakee to Memphis, where it was turned over to the Rock Island for Eunice, La. The Gulf Coast Lines moved the load from Eunice to Orange.

Car Loadings in Canada

Cars of revenue freight loaded in Canada during the week ended February 23 totalled 46,930 which is a decrease of 6,147 from the previous week and an increase of 2,789 cars over the corresponding week last year. The decrease in the week ended February 23, as compared with the previous week, is attributed to the severe snowstorms of February 19, 20 and 21, as a result of which cars loaded in Eastern Canada fell off 5,440 cars. As compared with the corresponding week last year Eastern Canada showed a decrease of only 369 cars while in Western Canada there was an increase of 2,420 cars.

Cumulative loadings of cars of revenue freight for the months of January to October, inclusive in 1923, as compared with the same months in 1922, are as follows, by commodities, respectively:

Products	Total freight originated	Loaded in Canada	From foreign connections
Agricultural	18,007,129 and 19,585,061	14,750,765 and 15,751,874	3,256,364 and 3,833,187
Animal	2,748,479 and 2,611,092	1,308,047 and 1,293,660	1,440,432 and 1,317,432
Mine	30,510,235 and 20,911,431	14,898,583 and 12,353,153	15,611,652 and 8,558,278
Forest	12,686,739 and 9,722,405	11,429,155 and 8,695,722	1,257,584 and 1,026,683
Manufactures and Miscellaneous	20,651,557 and 17,786,127	12,668,529 and 11,636,183	7,983,028 and 6,149,944
Grand total	84,604,139 and 70,616,116	55,055,079 and 49,730,592	29,549,060 and 20,885,524

Strathcona Fellowship at Yale

A Strathcona Memorial Fellowship in Transportation, of $1,000 is offered annually for advanced work in transportation, with special reference to the construction, equipment and operation of railroads, the problems connected with the efficient transportation of passengers and freight and the financial and legislative questions involved. The holder of the fellowship must be a man who has obtained his first degree from an institution of high standing. In making the award, preference is given, in accordance with the will of Lord Strathcona, to such persons or to sons of such persons as have been, for at least two years, connected in some manner with the railways of the Northwest.

Applications for this fellowship should be addressed to the Dean of the Graduate School of Yale University, New Haven, Conn., before May 1.

Rails Buried 60 Years

The Howard Kenyon Dredging Company, Houston, Tex., has started to remove from the bottom of the Trinity river, near Liberty, Tex., 5,000 tons of rails which have been buried in four feet of mud since the Civil War. The rails were brought to Texas in 1858 for the purpose of building a railroad from Liberty, Tex., to Livingston, 52 miles. The survey of the line was completed and work was begun but was interrupted by the Civil War before the track was laid and was left uncompleted, because of the financial demoralization following the war. The river changed its course and buried the rails. Three attempts have been made to recover the rails, the third about 15 years ago when a salvage organization succeeded in recovering 500 of the rails. The last attempt was made on February 11, of this year, when 15 tons were raised in a few hours, by the use of a dredge dipper. The dredging company expects to have the last of the rails raised within two weeks.

An International Contest for Electrical Engineers

The Association des Ingénieurs Eléctriciens Sortis de l'Institut Eléctrotéchnique Montefiore, Rue Saint Cilles 31, Liège, Belgium, has announced a prize to be offered every third year (the first time in 1925) for the best original contribution submitted on the scientific advancement in the technical application of electricity. Simple compilations and works of a popular character are excluded. Manuscripts may be written in either English or French. The prize may be divided under certain conditions or a third of it may be awarded to some one who, while not entering the competition, advances a new idea of great importance to the future development of the science. The prize is to be called the "Fondation George Montefiore" and will amount to the accumulated interest at 3 per cent on a fund of 150,000 Belgian francs. Further details may be obtained from the headquarters of the association at Liège.

Northern Pacific Land Grant Investigation

Expeditious action by Congress in investigating the Northern Pacific land grants, as requested by the Secretary of Agriculture and the Secretary of the Interior, was urged by President Coolidge in a letter to Chairman Lenroot of the Senate public lands committee made public at the White House on February 25. "That the legal and equitable claims of the grantee should be fully weighed and safeguarded goes without saying," he said.

President Charles Donnelly of the Northern Pacific has issued a statement regarding the matter in which he said:

"The grant of lands to the Northern Pacific was made nearly sixty years ago. Construction was begun in 1870, and the railroad from Lake Superior to Puget Sound was completed more than forty years ago. The grant has been in course of administration ever since construction began, that is to say for more than fifty years, and during that period every question now suggested by the government has been thoroughly considered and adjudicated.

"The railway company has always insisted that it involved a

breach of faith for the government to attempt to withdraw, for forest reserve purposes, any part of the lands due to it under the grant, and eight years ago the government brought against the Northern Pacific, in the United States district court of Montana, a suit of which the effect was to settle this specific question. That court decided the case in favor of the railway company. The government appealed to the United States circuit court of appeals for the ninth district at San Francisco, and that court decided in favor of the railway company, all three of the judges concurring.

"The government then appealed to the Supreme Court of the United States, and on April 11, 1921, that court decided in favor of the railway company, all nine of the justices concurring. The present step is a plain attempt through some form of congressional action, to circumvent these decisions, and without conceding for one moment that Congress can by any form of action affect rights which have vested in this way, we are, of course, at the command of Congress and will be prepared to submit every fact which may be regarded as pertinent to the inquiry. And we shall expect to be as successful in satisfying Congress of the merits of our case as we have been in satisfying the courts."

Canadian Parliament to Discuss Freight Rates in West

Western freight rates are likely again to occupy the Canadian Parliament during the present session. For some years there has been a strong agitation on the part of farm producers in the prairie provinces for a considerable reduction in the rates on grain and livestock, and it is already evident that it will be renewed this session. The basis of the debate will be the Crow's Nest Pass Agreement which was entered into some years ago between the Dominion government and the Canadian Pacific whereby in return for certain concessions by the former the railway was to give reduced rates on certain commodities. That pact later affected the railways recently taken over by the government. Two years ago, following an inquiry by a special committee of Parliament, the suspension of the agreement, ordered during the war, was ended with the exception of grain and flour, and the effect of this was to give reduced freight rates to the West on those two commodities. That suspension was made effective for one year, subject to continuance for a second year by an order-in-council which was duly promulgated. The arrangement will have run its full term on July 1 next. Unless the subject is dealt with at this session the entire agreement again comes into effect. Livestock westbound is also included in the reductions under the agreement, but eastbound rates on this commodity are now regarded as of greater importance.

The lapsing of the pact of two sessions ago also brings about a change in the rate-making other than as relates to the Crow's Nest Pass Agreement. The Act of 1919, which was continued in force by the legislation of 1922, further gives the Dominion Board of Railway Commissioners power to disregard all Acts of Parliament affecting freight rates, whether such are general or special or applicable to only one railway. Under this power the commission has exercised the right to fix rates on electric railways in the country under Dominion jurisdiction, in spite of the existence of contracts fixing rates. Unless an act is passed at the present session to continue this power of the commission it will lapse, too, on July 1 next.

Another aspect of the freight rate situation is the continued agitation of British Columbia, notably of the government of that province, for a substantial lowering of the westbound rates through the Rocky Mountains, if not the elimination of the mountain differential rates. G. G. McGeer, representing the British Columbia Government, who has arrived in Ottawa to argue for that province before the Dominion Railway Commission on the application of the express companies for an upward revision of their tariff, will later, it is stated, take a hand in pressing before Parliament, if not before the Commission, the demand for a further reduction of the westbound rates to the Pacific Coast. A few months ago the Railway Commission, on the recommendation of the Dominion government, made some reduction in those rates, but insufficient to satisfy British Columbia. Premier John Oliver of that province is the man behind the campaign for lower rates.

Traffic News

The Canadian Pacific Railway reports that grain shipped from the Province of Alberta to the Pacific Coast this year has amounted to 11,615 carloads.

Because of the increasing use of the automobile as a short-haul passenger carrier vehicle, the Missouri Pacific has reduced its force of train auditors from 70 to 35.

"Stag sleeping cars" are now run by the Pennsylvania Railroad between Philadelphia and Pittsburgh, on trains 55 and 42; all accommodations reserved for men.

Railroad men and shippers of Illinois met at Springfield, Ill., on March 5 for the purpose of forming a regional advisory board to foster greater co-operation between the two.

The Minnesota-Atlantic Transit Company will establish a package freight service across Lakes Superior and Huron, between Duluth, Minn., and Port Huron, Mich., at the opening of navigation. Connection will be made at Port Huron with the Pere Marquette Railway, for all lines east. Five steel vessels will operate in this route with a sailing every other day. Each vessel is equipped with large refrigeration space.

Shipping Board Asks that Export Rates Be Confined to Commerce Moving in American Ships

The United States Shipping Board on February 27 adopted a resolution intended to put into effect the provisions of Section 28 of the merchant marine act to confine through export freight rates over American railroads to commerce moving only in vessels of American registry. By this resolution the board certifies to the Interstate Commerce Commission that adequate shipping facilities to handle the transportation of all commerce other than grain between ports of the United States and ports of Great Britain and northern Ireland and the Irish Free State, the ports of continental Europe north of and including Bordeaux and the east coast of Asia, the islands of the Pacific ocean, Australia and the East India islands and the ports of Central and South America are now afforded by vessels documented under the laws of the United States. The board also certifies to the commission that the operations of the provisions of Section 28 of the merchant marine act of 1920 should not be further suspended by the commission so far as relates to the commerce outlined and that the commission's order of suspension of December 11, 1920, should be modified in accordance with the resolution but otherwise continued in force.

Shipping Board Opposes Transcontinental Fourth Section Application

The United States Shipping Board has adopted and sent to the Interstate Commerce Commission a resolution protesting against the granting by the commission of a pending fourth section application filed by the transcontinental rail lines for authority to establish rates to Pacific Coast terminals lower than the intermediate rates to meet the competition of water lines through the Panama Canal. The resolution states that such application by the rail carriers is an effort to divert traffic now being transported by ships operating in the intercoastal service through the Panama Canal which "have been utilized as a competitive artery of transportation on commodities moving between the Atlantic and Pacific seaboard and has resulted in the development of a large volume of commerce of great benefit to the producing, consuming and manufacturing portion of our population." It is also stated that: "It is believed by the United States Shipping Board that the application of the rail carriers is made in contemplation that it will drive the ocean carriers from this competitive trade through diversion of the commerce now being so carried in fair competition"; and that "Any destruction of the favorable and economical competitive transportation of commerce from the Pacific to the Atlantic seaboards through the Panama Canal would be injurious to the public interest."

Commission and Court News

Interstate Commerce Commission

The commission has set April 4 as the date for oral arguments at Washington on its investigation of rates for the transportation of anthracite coal.

The hearing in investigation of charges for Pullman passengers, including the surcharge, set for March 18 at Washington, has been postponed until March 19, before Commissioner Campbell and Examiner Keeler. The commission will expect that all evidence regarding the surcharge feature of this case be completed at this hearing.

The commission has made public a proposed report by G. M. Crosland, chief of the commission's section of tariffs, proposing a tentative revision of regulations to govern the construction and filing of freight rate schedules and classifications and passenger fare and pipe line schedules. It is proposed to cancel Tariff Circular 18a and to issue a new circular to be known as Tariff Circular 20a.

Grain Rates to the Southeast Justified

The commission, in its decision on the complaint brought by the Merchants' Exchange of St. Louis and other similar organizations, has found that the rates on grain, grain products and feed, in carloads, from Mississippi and Ohio river crossings and points north and west thereof to Mississippi Valley, southeastern and Carolina territories, are not unreasonable or unduly prejudicial. The commission also found that the transit and reshipping rules and the basing-point system of constructing rates on these commodities and in the territories named are not unduly prejudicial to the complainants.

Hearings on Transcontinental Freight Rates

Examiner M. A. Pattison has been holding hearings in New York City this week on the application of the roads between Chicago and the Pacific Coast for authority to reduce freight rates on certain commodities westbound. Shippers of steel and steel products from the Middle West complain that rates by water from New York to the Pacific Coast are so low as to interfere seriously with their industries. New York, Boston and other eastern communities oppose the proposal to reduce these rates, declaring that no better reason exists for such a reduction now than did exist two years ago when the commission refused a similar application. W. H. Chandler, speaking for the Boston Chamber of Commerce and the New England Traffic League, presented a statement claiming, among other points, that the data submitted in support of the application are incorrect; that the rates used to support the proposed rates in some cases are not from typical points and are selected to justify the proposed rates rather than being representative of the territory as a whole.

That the commission cannot legally deprive the East of business for the benefit of the West; that to grant the application would result in injustice both to Eastern railroads and to Eastern merchants. It would give Chicago an advantage to which it is not entitled. "Shippers of the Middle West," said Mr. Chandler, "desire to roll the Atlantic Ocean up to the Indiana-Illinois State line so they can have the advantages of the Panama Canal now enjoyed by Eastern industries, because of their geographical location."

The Merchants' Association of New York presented a detailed argument in opposition to the proposed reductions. To grant the rates asked for would be contrary to the policy of Congress. The proposed tariffs are lower than would be needed to meet the competition of the Panama Canal. If the income of the railroads at present is too low, how will they be extricated from their predicament by forcing them to establish rates on which the profits will be still lower?

The J. B. Williams Company, maker of soap in Connecticut, said that the reductions, if granted, would impose a handicap in competing with the 84 soap makers in Illinois.

Personnel of Commissions

Fred J. Miller of Center Bridge has been appointed a member of the Public Service Commission of Pennsylvania, succeeding John W. Reed. The new commissioner is an engineer; and the governor, in announcing the appointment, said that Mr. Miller would conduct a survey of the electric power service of the state with a view to seeing what could be done to give to the farmers a greater share of the benefits incident to the age of electricity.

State Commissions

The Chicago, Rock Island & Pacific has applied to the Missouri Public Service Commission for permission to close eight stations in the state as a retrenchment measure. The company declares that it has experienced a net operating deficit of $289,163 in Missouri during the six months ending June 30. The stations which the road seeks to close are Centaur in St. Louis county, Lebaddie and Beaufort in Franklin county, Medford in Johnson county, May and Brandon in Benton county, Etterville in Miller county and Greenwood in Jackson county.

United States Supreme Court

Intrastate Railroad's Right to Dismantle and Abandon Road

The Supreme Court of the United States has affirmed the decrees of the District Court for the Western District of Texas (283 Fed. 584), sustaining the right of the Eastern Texas Railroad Company to dismantle and abandon its road, which had been opposed by the state as regards intrastate commerce. The railroad's withdrawal from interstate and foreign commerce had previously had the sanction of the Interstate Commerce Commission, given under a law of Congress, and was sustained by the federal Supreme Court in Texas v. Eastern Texas, 258 U. S. 204.

The company was incorporated under a general state law in 1900 for a term of 25 years, and when it ceased operating the road 4½ years of that term remained. It had not acquired any property by state land grant or other public aid or by eminent domain. The state contended that under the state statutes the company was prohibited from dismantling or abandoning the road for the remainder of the 25-year term, or should respond in damages for failure to operate it.

The Supreme Court says that, in the absence of the two statutes relied on by the state, the following principles would govern the company's right to abandon its road:

"The usual permissive charter of a railroad company does not give rise to any obligation on the part of the company to operate its road at a loss. No contract that it will do so can be elicited from the acceptance of the charter or from putting the road in operation. The company, although devoting its property to the use of the public, does not do so irrevocably or absolutely, but on condition that the public shall supply sufficient traffic on a reasonable rate basis to yield a fair return. And if at any time it develops with reasonable certainty that future operation must be at a loss, the company may discontinue operation and get what it can out of the property by dismantling the road. To compel it to go on at a loss or to give up the salvage value would be to take its property without the just compensation which is a part of due process of law. The controlling principle is the same as applied in the many cases in which the constitutionality of a rate is held to depend upon whether it yields a fair return."

One of the statutory provisions relied on requires that all railroads "carrying passengers for hire" shall run at least one passenger train a day with provisions as to stops. The court holds this is nothing more than a regulation of passenger service on roads which are in operation and engaged in that service, and does not impose an unconditional duty to operate.

The other relates to "rights of purchasers of roadbeds, etc., sold for debt," and contains a provision that the main track of any railroad once constructed and operated shall not be abandoned or removed. The Supreme Court holds that this statute relates only to the organization, rights and duties of corporations formed to take over, maintain and operate railroads sold under judicial decree, etc., and did not apply to this road, which never was sold, the company having constructed it as an original undertaking.—Railroad Commission of Texas v. Eastern Texas. Decided February 18, 1924. Opinion by Justice Van Devanter.

Labor News

Officers of the Pennsylvania are holding conferences with representatives of conductors and brakemen on the question of an increase in pay. The Baltimore & Ohio is conferring this week with the Order of Railway Conductors and the Brotherhood of Railroad Trainmen. The New York, New Haven & Hartford is holding conferences with some of the brotherhoods.

Conferences are being held in Montreal at the headquarters of the Canadian National Railways between officers of the company and a committee representing the clerks, freight handlers and warehouse laborers. On March 3 a discussion took place on the question of combining into one schedule for the entire system the schedules in vogue on the old Grand Trunk and Canadian National Systems. The conferences, which are marked by good feeling, are being continued.

Canadian Trackmen

The Railway Association of Canada has received from the headquarters of the United Brotherhood of Maintenance of Way Employees and Railway Shop Laborers at Detroit a request for further conferences on wages and working conditions.

B. L. E. Bank in N. Y. Has $2,000,000

Assets of the Brotherhood of Locomotive Engineers' Co-operative Trust Company of New York have been doubled in its two months' existence and now exceed $2,000,000, according to a statement of Warren S. Stone, president of the institution. The number of depositors has also been doubled, he said.

Brotherhood Proposes to Get Rid of Labor Board

D. B. Robertson, president of the Brotherhood of Locomotive Firemen & Enginemen, has announced that the three Cleveland brotherhood presidents are supporting a bill to be introduced concurrently in the Senate and the House of Representatives at Washington, entitled "The Railway Labor Act," abolishing the United States Railroad Labor Board. The proposed act embodies some of the features of the present laws intended to preserve peace in the transportation industry, Mr. Robertson said. The basis of the bill is an obligation to negotiate agreements and to abide by such voluntary contracts.

Labor Board Decisions

Computing Overtime in Freight Service

In a dispute between the Order of Railway Conductors, the Brotherhood of Railroad Trainmen and the Southern Pacific as to the proper method to be used in computing overtime in through and irregular freight service under a decision rendered by Railway Board of Adjustment No. 1 in case No. 27-268, the Railroad Labor Board ordered that, in computing overtime in such service, one-eighth or three-sixteenths of the rates for 100 miles, as provided in the agreement, shall be used.—*Decision No. 2127.*

Wisconsin Railroad Commission Cannot Order Restoration of Spur Track Built at Railroad's Expense

A complaining shipper being given a remedy to acquire a spur track under Wisconsin St. 1921, section 1797—11 m. 1802, the Wisconsin Supreme Court holds that the Railroad Commission has no jurisdiction to order restoration of a spur track built by the railroad at its own expense under §1831a, and under easements which it had acquired. The latter stands in a substantially different position from a track in which some particular industry has an interest because of the investment of its own funds in the construction thereof.—C. & N. W. v. Railroad Commission (Wis.) 193 N. W. 981.

Foreign Railway News

British Firm Gets Contract for Sydney Harbor Bridge

Cable dispatches from Sydney, N. S. W., are authority for the statement that the government of New South Wales has awarded the contract for the construction of a bridge across Sydney harbor to Dorman, Long & Company, London. This bridge will be 3,840 ft. in length and will carry four railway lines, two roadways and a walk for pedestrians. The bridge will be of a single span, cantilever and will cost in excess of $18,000,000.

Swedish Railways Compete with Highway Motor Vehicles

The Swedish State Railways, according to dispatches to the New York Times, are utilizing Diesel motor trains on which reduced rates of fare are charged in order to compete with the motor buses using the highways and are succeeding thereby in holding a major share of the traffic. The railways report an improvement of over $2,000,000 in their earnings last year over the year previous and are considering the making of some reductions in freight rates.

In Praise of Sir William Acworth

In commenting on the action of the experts, who are examining into Germany's ability to make her railways pay some of the money she owes on reparations' account, in calling Sir William Acworth, the well-known British railway expert, to testify, the Evening Standard (London), says:

"The Committee of Experts could not have called in a better man to advise them in regard to the German railways than Sir William Acworth. He is by far the best equipped authority on such matters that we have in this country.

"'Send for Acworth,' indeed, has become a motto common to all lands that have tied themselves up in a railway knot.

"Ireland, India, Canada, South Africa, Austria, and the United States have all in turn drawn upon his services, and this quiet, humorous expert, with all railway problems at his finger-ends, and the disentangling brain to solve them, leads the busiest and most delightful of lives promoting railway efficiency all over the world, and practising it as a director of the Underground."

Experts Report on German Railways

Sir William Acworth, the British railway expert, and M. Leverve, a French engineer, on February 23 made their report on the German railway situation to the interallied committee of experts which is examining into Germany's ability to pay reparations. In the opinion of Sir William and M. Leverve, the German railways could, by raising rates to the level in force in France and by discharging surplus employees, earn a net profit of 800,000,000 gold marks—almost $200,000,000. The interallied experts propose to make the earning power of the German railways a basis for a loan to Germany to enable German industry to get again into production and thus to begin the payment of reparations in kind. The adoption of the proposal would mean the end of the control of the Ruhr railways by the Franco-Belgian Regie, but would mean some control of all the German railways by the Allies. The French are said not to look with much favor on the idea of relinquishing control in the Ruhr, while the Germans do not favor foreign interference with all the railways. The average estimate of the value of the German railways was approximately 25 billion gold marks—over six billion dollars.

Knighthood for Another British Railway Executive

The honor of knighthood has been conferred upon Felix J. C. Pole, general manager of the Great Western Railway (England). He is the second head of one of Great Britain's four railways to be similarly honored within the last few months, Sir Arthur Watson, general manager of the London, Midland & Scottish, having received that title only a short time ago.

Sir Felix was born in Wiltshire in 1877 and entered railway service with the Great Western at Swindon in 1891 in the telegraph department. Two years later he went to London (Paddington) to the office of the electrical superintendent. In 1896 he was transferred to the office of the chief engineer where he handled matters having to do with real estate. In 1903 he joined the staff of the general manager of the company as editor of the Great Western Railway Magazine, serving at the same time as a personnel and employee relations officer. In 1913 he became chief clerk to the general manager and in 1919 was promoted to assistant to the general manager and, a few months thereafter, to assistant general manager, which position he held until 1921, when he was elected general manager. Sir Felix continued in active charge of the company's magazine until 1919.

Johore Straits Causeway Opened

The causeway across the Straits of Johore, connecting the island of Singapore with the mainland, was opened to freight traffic on September 17 and to passenger traffic on October 1, 1923, according to Vice-Consul Miller at Singapore. The ferry system in use for 14 years has been discontinued.

The Johore State Railway was opened to traffic in 1909, and a car ferry service was established between Johore Bahru and Woodlands. Each of the ferry boats carried six freight cars, and passengers were transferred by launches. When the traffic increased from 11,500 cars in 1911 to 54,000 in 1917, it was decided that other means would have to be provided for its through movement. Construction of the causeway began in 1919. Its cost, estimated at $17,000,000, will be borne jointly by the governments of the Federated Malay States, Johore, and the Straits Settlements.

When completed the causeway will contain over 1,500,000 cu. yd. of rubble. It is built in an average water depth of 46 ft. at low tide. Its length will be 3,465 ft. and its width on top will be 60 ft., carrying two railway tracks and a 26 ft. roadway. A lock is provided for the passage of local craft, and a rolling lift bridge carries the railway and roadway across the lock. The moving part of this bridge weighs 570 tons and is operated by electricity.

Austrian Railway Freight Tariff Revised

The new management of the Austrian Federal Railways, in charge of a board of directors composed of active business men, introduced a revised tariff in November, whereby rates in the interest of the railroads will also be in a certain relation to the economic importance of the goods and their value to legitimate Austrian industry and trade, according to Trade Commissioner Upson at Vienna. An attempt is made to facilitate, so far as possible, the importation of raw materials for local industries and the exportation of their products. The new tariff was scheduled to take effect January 1, 1924.

In accordance with the principles outlined, 241 (42 per cent) of the 621 items forming the present customs tariff have been classified in lower railway rate categories, while 58 per cent either have remained unchanged or have advanced to a higher class. Classification in a lower group means considerable saving in freight charges for a variety of goods, reaching in some cases 40 per cent of present rates.

The introduction of special export rates is contemplated for various articles, such as agricultural implements, iron utensils, machines, motors, iron plates and sheet iron, iron rods and profile iron, scythes and sickles, tubes, and pottery, whereby extensive percentage reductions from present rates would be provided. In this way the competing ability of many Austrian industries will probably be increased by the reduction of freight rates on imports of raw materials, as well as on the export of their products.

There are, however, a large number of articles on which freight charges are below all proportion to value of goods and which have thus become more advantageous to the merchant than before the war. The railway management is therefore planning to increase substantially the rates on such articles as chemicals, cement, and foodstuffs, thereby offsetting the loss sustained by other freight reductions and also increasing freight revenues.

These changes in classification have been warmly welcomed by economic organizations. On the other hand, disapproval has been expressed on the ground that the changes are to be accompanied by so great an increase in the freight unit for each tariff group that even goods classified in a lower group will frequently be charged more per kilogram than hitherto.

Equipment and Supplies

Locomotives

THE CLEAR LAKE LUMBER COMPANY, Oregon, has ordered one Shay type locomotive from the Lima Locomotive Works.

THE SILER LOGGING COMPANY, Washington, has ordered one Mikado type locomotive from the Baldwin Locomotive Works.

THE SHEVLIN-HIXON COMPANY, reported in the *Railway Age* of February 9 as contemplating buying 2 locomotives, has ordered one Mikado type locomotive from the Baldwin Locomotive Works.

THE CANADIAN NATIONAL ordered the 5, 2-10-2 type locomotives and 15 Mountain type locomotives from the Canadian Locomotive Company, instead of from the Montreal Locomotive Works, Ltd., as was reported in the *Railway Age* of March 1.

THE UNION PACIFIC, reported in the *Railway Age* of February 23 as inquiring for 25 locomotives, has ordered 20 Mallet type and 5 Mountain type locomotives from the American Locomotive Company, and 10, 2-10-2 type locomotives from the Baldwin Locomotive Works.

Freight Cars

THE CHICAGO, BURLINGTON & QUINCY is inquiring for 1,000 stock cars.

THE CENTRAL OF GEORGIA is inquiring for 10 steel underframes for caboose cars.

THE FRUIT GROWERS EXPRESS has ordered 100 underframes from the Ryan Car Company.

THE KINGAN REFRIGERATOR LINE, Indianapolis, Ind., is inquiring for 100 refrigerator cars.

THE YOUNGSTOWN SHEET & TUBE CO., is inquiring for repairs on from 500 to 600 hopper cars.

THE UTAH COPPER COMPANY, New York, is inquiring for 6 50-ton steel underframes for flat cars.

THE PORT OF MONTEVIDEO is inquiring through the car builders for 15 gondola cars of 22 tons' capacity.

THE NORFOLK & WESTERN contemplates buying 2,000 box cars and also contemplates rebuilding a large number of hopper cars.

THE SKELLY OIL COMPANY, reported in the *Railway Age* of February 23 as inquiring for 30 tank cars of 8,000 gal. capacity, has ordered 35 tank cars from the General American Tank Car Corporation.

THE NEW YORK CENTRAL has placed additional orders for cars as follows: To the American Car & Foundry Co., 500 cars, the Standard Steel Car Company, 1,000 and the Pressed Steel Car Company, 1,000.

THE UNIVERSAL PORTLAND CEMENT COMPANY, reported in the *Railway Age* of February 2 as inquiring for 50, 70-ton hopper cars, has ordered this equipment from the Mt. Vernon Car Manufacturing Company.

THE CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS, reported in the *Railway Age* of January 12 as inquiring for prices on the conversion of from 250 to 700, 30-ton box cars to 40-ton stock cars, has decided not to have this work done.

THE DELAWARE, LACKAWANNA & WESTERN, reported in the *Railway Age* of February 23 as contemplating buying 500 automobile cars, has ordered 750 automobile cars, 40 ft. long, from the American Car & Foundry Co., and 250 cars from the Magor Car Corporation.

THE ATCHISON, TOPEKA & SANTA FE reported in the *Railway Age* of February 22 as expecting to place contracts for 500 stock

cars has ordered 500 stock cars of 40 tons' capacity from the Standard Steel Car Company. This company has divided an order for 200 dump cars between the Clark Company and the Western Wheeled Scraper Company.

THE CANADIAN NATIONAL, reported in the *Railway Age* of March 1 as inquiring for 1,700 cars of various types, has ordered 150 Hart convertible cars from the Canadian Car & Foundry Co., 500 general service cars from the Eastern Car Company and divided the order for 1,000 automobile box cars of 60 tons' capacity as follows: National Steel Car Corporation 400; Canadian Car & Foundry Co., 400; Eastern Car Company 200.

THE PENNSYLVANIA, reported in the *Railway Age* of February 2 as having placed orders for 2,000 car bodies has now placed orders for a total of 12,000 car bodies, of which 8,000 are for box cars and 3,000 for automobile cars. The orders for box car bodies are as follows: Pressed Steel Car Company, 3,000; American Car & Foundry Company, 2,000; Pullman Company, 2,000; and Bethlehem Steel Company, 1,000. The orders for automobile car bodies are: Standard Steel Car Company, 2,000; Newport News Shipbuilding & Dry Dock Company, 1,000. Orders have also been placed for 500 stock car bodies with the General American Car Company and for 500 with the Liberty Car Company.

Passenger Cars

THE BESSEMER & LAKE ERIE contemplates buying a number of cars of various types for passenger service.

THE SAN ANTONIO, UVALDE & GULF has ordered one "Model 55" gasoline passenger and baggage car from the J. G. Brill Company.

THE NEW YORK CENTRAL contemplates buying a number of suburban cars for the Boston & Albany; also, about 25 horse express cars.

THE SOUTHERN PACIFIC is inquiring for 6 motor coaches, 58 ft. long. This is in addition to the inquiry for 23 cars, reported in the *Railway Age* of March 1.

THE NEW YORK, WESTCHESTER & BOSTON, reported in the *Railway Age* of October 20 as contemplating the purchase of about 10 cars for passenger service has ordered 10 steel passenger coaches from the Pressed Steel Car Company.

Iron and Steel

THE DELAWARE & HUDSON has ordered 200 tons of steel for bridges from the American Bridge Company.

THE NEW YORK CENTRAL has ordered 650 tons of steel for bridges from the American Bridge Company.

Track Specialties

THE MISSOURI PACIFIC has ordered 100,000 tie plates from the Lundie Engineering Corporation.

Machinery and Tools

THE BALTIMORE & OHIO is inquiring for six 15-ton locomotive cranes.

THE BESSEMER & LAKE ERIE is inquiring for one 25-ton locomotive crane.

THE ATLANTIC COAST LINE is inquiring for two 15 to 20-ton locomotive cranes.

Signaling

THE READING COMPANY has ordered from the Union Switch & Signal Company 32 semaphore signals, style T-2, for signaling 11 miles of line between Bryn Athyn, Pa., and Newtown.

THE NORFOLK & WESTERN has ordered from the Union Switch & Signal Company 26 position-light signals, 740 alternating current relays, 888 transformers and other apparatus for use on the Shenandoah division, where continuous automatic train control will be installed.

THE UNITED RAILWAYS & ELECTRIC COMPANY OF BALTIMORE has ordered from the Union Switch & Signal Company color-light signals, with track circuit apparatus and two dwarf interlocking machines, for signaling at the crossing of the electric line with the Western Maryland in Arlington, Md.

THE ATLANTIC COAST LINE has ordered from the Union Switch & Signal Company an electro-mechanical interlocking machine for Hortense, Ga.; 10 mechanical levers and 5 electric units, some of the latter to be used for low-voltage switch movements. The A. C. L. also has ordered from the same company 104 semaphore signals to be installed between Folkston, Ga., and Jesup; also an electro-mechanical interlocking for Nahunta, Ga., 9 mechanical levers and 6 electric units for signals and 4 electric units for low-voltage switch movements; also electro-mechanical interlocking for Pee Dee Junction, S. C., 8 mechanical levers and 6 electric units; also, for this locality, 5 semaphore signals.

New York Central Train Control Contracts Go to Three Companies

The New York Central Lines, on Wednesday of this week, announced that contracts had been let for the materials for automatic train control apparatus on the five roads named in the Interstate Commerce Commission's first order, the work of installation to be done in all cases by the railroad companies. The roads involved are: (1) the Boston & Albany; (2) the Michigan Central; (3) the Cleveland, Cincinnati, Chicago & St. Louis; (4) the Pittsburgh & Lake Erie; (5) the New York Central. The contracts have been let for roads 1, 2 and 3 to the General Railway Signal Company; No. 4, the Union Switch & Signal Company; No. 5, the Sprague Safety Control & Signal Corporation. Each of the contractors is to begin work as soon as possible.

The sections of railroad covered are (1) Springfield, Mass., to Albany, N. Y.; (2) Detroit, Mich., to Jackson; (3) Indianapolis, Ind., to Mattoon, Ill.; (4) Pittsburgh, Pa., to Youngstown, Ohio; (5) Albany, N. Y., to Syracuse.

LOCOMOTIVES INSTALLED AND RETIRED

Month 1923	Orders: Domestic orders reported during month	Orders: Total domestic orders Jan. 1 to date	Installed during month	Aggregate tractive effort	Total installed year to date	Retired during month	Aggregate tractive effort	Owned at end of month	Aggregate tractive effort	On order first of following month	Building in R. R. shops
September	...	.....	384	22,342,517	2,967	260	7,191,302	64,720	2,506,469,051	1,242	7
October	...	.....	408	21,665,487	3,375	301	7,935,709	64,827	2,520,200,846	942	15
November	...	.....	333	19,054,713	3,708	282	7,741,395	64,879	2,532,085,380	739	14
December	...	.....	333	18,260,423	4,041	316	8,738,378	64,896	2,541,607,425	510	14
Year 1923	...	1,984	...	.....	4,037†	3,672	.....	.....	.....	...	..
1924											
January	125	.....	271	15,228,895	.....	178	4,447,721	64,989	2,552,694,953	439	14
February	214*	339	...	.....	.....	...	.....	.....	.....	...	..

[1]Details as to orders from *Railway Age* weekly reports. Figures include all domestic orders placed with builders and railroad shops, but not rebuilt equipment.

[2]Figures as to installations and retirements prepared by Car Service Division, ARA, published prior to October in reports relative to progress, made on A. R. A. transportation program and more recently in greater detail given in form C. S. 56A-1. Figures cover only those roads reporting to the Car Service Division. They include equipment received from builders and railroad shops. Figures of installations and retirements alike include also equipment rebuilt to an extent sufficiently so that under the accounting rules it must be retired and entered in the equipment statement as new equipment. Figure as to orders as given in first column of table is not therefore comparable with figures relating to installations given in succeeding columns.

*Includes orders reported in *Railway Age* of March 1.

†Corrected figures.

Supply Trade News

The McMyler-Interstate Company has moved its Chicago office to 648 Railway Exchange Building.

W. R. Toppan, manager of the railroad department of the **Graver Corporation,** with headquarters at Chicago, has resigned.

H. K. Lowry, signal engineer of the Chicago, Rock Island & Pacific, with headquarters at Chicago, has resigned to enter the service of the **Sprague Train Control & Signal Corporation.**

L. Sparks, New England manager of the Erie Steam Shovel Company, has been appointed eastern sales manager of the **Ohio Locomotive Crane Company,** with headquarters at New York.

The Pawling & Harnischfeger Company, Milwaukee, has purchased from the receivers, the entire property of the Hercules Steel Castings Company, Milwaukee, and will operate the plant about May 1.

Frederick V. Green was elected second vice-president of the **Pittsburgh Testing Laboratory,** Pittsburgh, Pa., at the February meeting of the board of directors. His headquarters will be at the New York office of the company, 50 Church street, and he will have direct charge of the eastern district. Mr. Green was born in New York City and received his education at Nyack, N. Y. After serving in the lumber business he organized in 1895, the Empire Engine & Motor Co., and was its treasurer until 1902 when he became associated with the Westinghouse Air Brake Company as assistant general sales manager in the New York territory. From 1919 he served for about four years as sales manager of the Baldwin Locomotive Works, at Johannesburg, South Africa. Since September, 1923, he has been with the Pittsburgh Testing Laboratory as assistant to the president.

F. V. Green

The Kent Engineering Company, district representative of the Conveyors Corporation of America, Chicago, has changed its address from 504 First National Bank Building, to 1110 Farnam street, Omaha, Nebr.

L. A. Hull has joined the sales department of the **International Oxygen Company,** Newark, N. J. Mr. Hull has had a great deal of experience in the engineering as well as in the selling end of the business.

The Steigelmeyer Manufacturing Company, Seymour, Ind., has purchased a controlling interest in the Simplex Train Control Company, Buffalo, N. Y., and will transfer its manufacturing operations to Seymour.

C. E. Eklind, chief draftsman in the office of the engineer of car construction of the Atchison, Topeka & Santa Fe, has been appointed mechanical engineer of the **Camel Company,** with headquarters at Chicago.

F. H. Elmore, manager of the railroad department of **Hutchinson, Rivinus & Company,** insurance brokers, Philadelphia and New York, has resigned. Mr. Elmore was formerly superintendent of insurance of the Southern Railway and was for three terms president of the Railway Fire Protection Association.

Elijah Bates, local manager of Haskins & Sells, public accountants, with headquarters at Cleveland, Ohio, has been appointed secretary and treasurer of the **McMyler-Interstate Company,** with headquarters at Cleveland, Ohio, succeeding H. H. Hammond, resigned.

The Dixon Waste Company, with office and works at Manayunk, Philadelphia, Pa., will in future assume deliveries of all regular products of the Trumbull Waste Manufacturing Company, of Manayunk. The latter company on March 5 discontinued active business and is now liquidating its affairs.

Stuart J. Dewey, formerly assistant signal engineer of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Cincinnati, Ohio, and more recently engineer with the State Highway Commission of Pennsylvania, has been appointed sales engineer of the **Truscon Steel Company,** with headquarters at New York.

D. S. Price, an engineer with **S. F. Bowser & Company,** has been promoted to district manager in charge of the lubrication and filtration department, with headquarters at Detroit, Mich. **O. M. Tottom,** engineer, has been promoted to district manager in charge of the lubrication and filtration department, with headquarters at Indianapolis, Ind.

The Mt. Vernon Car Manufacturing Company, Mt. Vernon, Ill., has placed a contract with the Hughes-Foulkrod Company and the McClintic-Marshall Company, for the construction of a steel and brick wood mill 350 ft. by 204 ft., with three aisles, each equipped with traveling cranes. The contract also includes a power house 40 by 98 ft. The approximate cost of these buildings is $200,000. The Mt. Vernon Car Manufacturing Company has just completed a new blacksmith shop 350 ft. by 100 ft., equipped with a traveling crane, arranged for use between the shop and the yard, at an approximate cost of $150,000. In addition this company has completed a repair shed 500 ft. by 100 ft., equipped with double bridge traveling cranes for the repair of freight cars.

Pressed Steel Car Company

The Pressed Steel Car Company report for the year ended December 31, 1923, shows gross earnings of $2,799,974, as compared with $58,312 in 1922. The net income of $1,706,861 in 1923 was equivalent, after preferred dividends, to $6.65 a share on the $12,500,000 common stock outstanding. This compares with a deficit of $341,688 in 1922. The surplus at the end of the year was $14,168,073, as compared with $13,461,212 at the close of 1922.

The condensed balance sheet of the Pressed Steel Car Company, as of December 31, 1923, compares as follows:

	1923	1922
Assets		
*Properties and franchises	$25,542,334	$25,923,287
Improvements, Pennsylvania Malleable Co.	181,634	132,828
Deferred charges	828,975	862,637
Stocks and bonds owned	6,441,285	5,924,776
Cash in banks and on hand	2,190,112	1,560,522
Notes and accounts receivable	7,842,329	3,808,658
Due from subsidiary companies	3,797,319	6,134,986
Stock of materials on hand	5,116,429	6,171,198
	$51,940,417	$50,518,891
Liabilities		
Common stock	$12,500,000	$12,500,000
Preferred stock	12,500,000	12,500,000
Convertible bonds	6,000,000	6,000,000
Accounts payable	4,357,536	4,718,334
Notes payable	1,000,000	.....
Accrued salaries and wages	396,057	320,595
Dividend reserve	218,750	218,750
Contingent reserve	800,000	800,000
Working capital	14,168,073	13,461,212
	$51,940,417	$50,518,891

*Less depreciation, obsolescence, etc.

F. N. Hoffstot, president of the company, said:

Your company carried over a large volume of business from 1922, which was executed on a high labor market, and in view of this, we believe the results are gratifying. During 1923, about half as many cars were purchased as during 1922, so that our carry over of unfilled orders is not as large as last year, but prospects are good for new business in the United States, provided no unfavorable circumstances arise. Both materials and labor are now higher in this country than in other parts of the world, due largely to the cessation of building operations during the war and the endeavor since to make up the shortage, but inasmuch as conditions would seem to indicate that considerable new building must yet be done, it is more than likely that the present level of values will be maintained.

Railway Steel-Spring Company

The annual report of the Railway Steel-Spring Company for 1923 shows net earnings of $3,341,271, equal to $17.75 a share on the outstanding $13,500,000 common stock, after charges, depreciation and federal taxes, as compared with $2,237,294, or $10.23 a share, in 1922. The company reported a surplus for the year 1923 of $1,316,271, after dividends amounting to $2,025,000, against a surplus of $302,294 for the preceding year. On December 31, 1923, the profit and loss surplus stood at $14,087,555, as compared with $12,771,284 on December 31, 1922.

F. F. Fitzpatrick, president, in his remarks to the stockholders, said in part:

The annual report for the year 1922 stated that for the purpose of economy the operations of the wheel plants of the company would be discontinued at the several locations and the production of this line of work concentrated at the tire plants. This has been accomplished, and during the year the plants at Pullman and Scranton were dismantled and the properties sold, involving a loss in book values of $309,053.58, which amount has been charged to "reserved for contingencies," and this item reduced accordingly. It is proposed to sell the Depew and Hudson properties at a favorable opportunity.

In line with the company's policy of concentration, the transfer of the spring operations at Pittsburgh to Latrobe was determined upon, and the erection of a new spring shop on this property commenced during the year 1923. This new unit will have the most modern equipment and appointments, which, with increased capacity and facilities, should result in greater economy of production and distribution. The construction work is now well advanced and upon completion of the building and the installation of machinery on or about July 1, 1924, the manufacture of springs at Latrobe will be inaugurated and the operations at Pittsburgh cease. The present market value of the Pittsburgh property about equals the book value and in due course it will be sold to the best advantage.

The "stocks, bonds and investments" of $8,675,155.86 consists altogether of income producing investments, principally United States Treasury Certificates of Indebtedness.

New business was received in considerable volume during the greater part of 1923, but towards the close of the year a decline in the purchase of cars and locomotives by the railroads, and a curtailment of orders for their current requirements, reduced the earning capacity for that period. At the present time there is an improvement in this respect, and it seems quite likely that a fair quantity of new equipment may be ordered, and that there will be the usual normal demand for repairs and renewals, which should give reasonable assurance of a satisfactory showing for the current year.

The balance sheet of the Railway Steel-Spring Company, as of December 31, 1923, compares as follows:

ASSETS

	1923	1922
Plants, properties, etc.	$27,224,245	$27,503,416
Inventories	2,872,988	2,104,651
Stocks, bonds and investments	8,675,156	8,610,135
Accounts receivable	2,482,578	2,376,374
Other items	115,864	144,042
Cash	1,888,745	1,131,482
	$43,259,577	$41,870,101

LIABILITIES

Preferred stock	$13,500,000	$13,500,000
Common stock	13,500,000	13,500,000
Accounts payable	427,725	297,401
Reserved for preferred stock dividend, taxes, etc.	965,552	721,230
Reserved for contingencies	778,745	1,080,185
Surplus	14,087,555	12,771,284
	$43,259,577	$41,870,101

Air Reduction Company, Incorporated

The report of the Air Reduction Company, Incorporated, for the year ended December 31, 1923, shows net profits of $2,138,023 after all reserves and federal taxes, as compared with $879,507 in 1922. Gross income amounted to $10,201,061 in 1923, an increase of approximately 44 per cent over 1922. During 1923 the net outstanding funded debt was reduced from $2,034,250 to $1,075,600.

In his remarks to the stockholders, C. E. Adams, president, said in part:

It has long been the policy of the company to apply its reserves and surplus earnings to the expansion of its manufacturing and distributing facilities. The increased production thus obtained made it possible to take advantage of a good industrial year and establish a new record of sales and earnings.

Oxygen plants were erected at Baltimore, Md., and Sharon, Pa. The capacity of the present oxygen plant in Cleveland was increased and a plant erected there for the production of argon. Also, during the year sufficient oxygen cylinders were purchased and acetylene cylinders manufactured to take care of the company's increased production and sales.

For 1924 the company's plans contemplate the erection of several new oxygen plants, and sites for this purpose have already been obtained at Harrisburg, Pa., and Lima, Ohio. Additional oxygen and acetylene cylinders will also be obtained and additional acetylene capacity will be installed. Further, all the company's older oxygen plants will be remodeled to conform with the latest type of liquefaction apparatus as developed by the company's research engineers.

The condensed balance sheet of the Air Reduction Company, Incorporated, as of December 31, 1923, compares as follows:

ASSETS

	1923	1922
Cash	$1,365,626	$1,062,581
Notes and loans receivable	619,794	405,665
Accounts receivable	1,448,179	1,397,362
Inventories	1,318,895	1,528,143
Land, buildings and equipment including gas cylinders (less reserves)	5,676,907	5,413,529
Investments	975,823	532,729
Patents and licenses	767,622	869,517
Prepaid insurance, taxes, etc.	53,295	42,804
	$12,226,142	$11,252,331

LIABILITIES

Accounts payable	$237,802	$259,507
Dividends payable	173,585	168,121
Reserves for taxes, bond interest, etc.	435,005	281,700
Bonds and mortgages	1,075,600	2,034,250
Capital stock	7,858,900	7,517,300
Surplus (after federal taxes and dividends)	2,445,250	991,452
	$12,226,142	$11,252,331

Lima Locomotive Works, Incorporated

The net income of the Lima Locomotive Works, Incorporated, for the year ended December 31, 1923, was $2,402,605, as compared with $175,446 for 1922. Sales for the year 1923 amounted to $20,286,867 and expenses to $17,495,032. Profit before taxes was $2,902,605. After deduction for dividends, there was a surplus of $4,015,877 at the end of 1923, against $2,453,167 at the close of the preceding year.

Joel S. Coffin, chairman of the board, in his report, said in part:

"The plant extension program on which the company entered early in 1923 was completed during the year and the additional capacity thus provided made it possible materially to extend sales, with consequent increase in earnings.

"On June 1, 1923, the outstanding seven per cent preferred stock of the company was called for redemption at $107.50 per share and accrued dividends, in accordance with the terms of the certificate of incorporation. Such stock being convertible into common stock on the basis of two shares of the common stock for one share of the preferred stock, all preferred stockholders availed themselves of this conversion privilege so that no stock remained for redemption. As a result of the conversion the company now has but one class of stock, namely, common stock without par value, of which there are outstanding 211,057 shares."

The balance sheet, as of December 31, 1923, follows:

ASSETS

Current assets—		
Cash	$1,434,018.11	
Investments	181,350.00	
Bills receivable	150,623.00	
Accounts receivable	2,257,309.98	
Inventories—Materials and supplies and work in progress	3,887,894.67	$7,911,195.76
Accident insurance fund (cash and Government securities), (see contra)		138,411.56
Property account—Land, buildings, machinery and equipment (less reserve for depreciation)		5,443,040.73
Drawings, patterns, dies, etc.		1.00
Goodwill		2,687,716.47
Deferred charges		54,379.10
		$16,234,744.62

LIABILITIES

Current liabilities—		
Accounts payable	$885,198.96	
Miscellaneous accrued liabilities	115,110.86	
Reserve for federal income taxes and contingencies	527,296.71	$1,527,606.53
Accident insurance reserve (see contra)		138,411.56
Capital (common stock):		
300,000 shares without par value authorized		
88,943 shares unissued		
211,057 shares outstanding		10,552,850.00
Surplus December 31, 1923		4,015,876.53
		$16,234,744.62

Obituary

Leroy Beardsley, treasurer of the Chicago Pneumatic Tool Company from 1898 to 1918 died on March 5, at Riverside, Ill.

Trade Publications

ORDERING FLEXIBLE JOINTS.—The ordering of Barco flexible joints of all kinds is greatly facilitated by means of a four-page catalogue No. 101, recently issued by the Barco Manufacturing Company, Chicago. This catalogue contains illustrations of the various kinds of flexible joints made by this company with designating figures and letters which will enable parts to be ordered with little if any possibility of error. On the last page of the catalogue is a table showing the dimensions of these various parts and the joint sizes. A schedule for ordering automatic smoke box blower fittings is also included on the last page.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company has been granted permission by the Interstate Commerce Commission to construct an extension from Marland, Okla., into the Tonkawa oil fields, a distance of approximately 10 miles.

BALTIMORE & OHIO.—This company has awarded a contract to Joseph E. Nelson & Sons, Chicago, for the construction of a building, tank foundation, pump house and piping for a water treating plant at Connellsville, Pa.

CANADIAN NATIONAL.—This company has contemplated the construction of a grain elevator at Prince Rupert, Man.

CENTRAL OF GEORGIA.—This company has applied to the Interstate Commerce Commission for authority for the construction of 47.55 miles of new or diverging line between Opelika and Sterretts, Ala., as a part of a revision of alinement and grades on 100 miles of the Columbus-Birmingham line which will reduce the mileage by 4.33 miles and, it is estimated, will reduce the cost of service by over 6 per cent on the investment. Approximately half of the work will be new or diverging line adjoining the present line.

CHICAGO, ROCK ISLAND & PACIFIC.—This company has authorized the following construction this year: passenger stations at Iowa Falls, Ia., and Tucumcari, N. Mex.; freight station at Wewoka, Okla.; improvements to the passenger stations at El Dorado, Ark., and Hot Springs; coaling stations at Peoria, Ill., Hutchinson, Kan., Dalhart, Tex., and Melcher, Ia.; water station at St. Albans, Mo., and power plants at Armourdale, Kan., Herington and Horton.

CHICAGO, ROCK ISLAND & PACIFIC.—This company has authorized the construction of extensions to second and third main tracks this year at a cost of $425,000. Grade separation work at Burnside, at a cost of $350,000, has also been approved.

CLEVELAND, CINCINNATI, CHICAGO & ST. LOUIS.—This company plans the construction of a passenger station at Sidney, Ohio, and will soon call for bids for the work. This company also contemplates the construction of an engine terminal at Cincinnati, Ohio, but has not yet completed plans.

ILLINOIS CENTRAL.—Upon reargument at the instance of the Illinois state authorities the Interstate Commerce Commission has reaffirmed its original decision authorizing the Southern Illinois & Kentucky and the Chicago, St. Louis & New Orleans, subsidiaries of the Illinois Central, to construct lines in Illinois and Kentucky, forming, with already existing facilities, a line from Edgewood, Ill., to Fulton, Ky., 169 miles. The Illinois Central was also authorized to acquire control of and to operate the line. The commission discusses the questions of law and of jurisdiction raised by the state authorities and says: "The statute under which we are proceeding is framed in plain language and contains no condition, either express or necessarily implied, that its administration is subject to the limitations of state authority."

LOUISVILLE & NASHVILLE.—This company is calling for bids for the construction of a two-story brick freight station at Covington, Ky., reported in the *Railway Age* of October 6.

PENNSYLVANIA.—This company has prepared plans for two new freight houses at Cincinnati, Ohio, as reported in the *Railway Age* of March 1. The buildings will be of brick and steel construction and one story in height. They will be erected on foundations which were constructed before the war but on which work was abandoned during the period of federal operation. Construction will begin in March. The estimated cost is $300,000.

SANTA FE & NORTHWESTERN.—This company plans the construction of a line from La Ventana, N. Mex., to Farmington, a distance of 100 miles; a 16-mile branch line from San Ysidro, N. Mex., and a 12-mile branch line from La Ventana to Cuba. The Cuba Extension railroad, a subsidiary of the Santa Fe & Northwestern, is now constructing a 44-mile line from San Ysidro to Cuba. Sidney M. Weil, Albuquerque, N. Mex., is promoting the enterprise.

SOUTHERN.—This company will soon award contracts for the construction of modern engine-handling facilities at Spencer, N. C., the junction point of the Charlotte, Danville, and Asheville divisions. The new facilities will include a 37-stall roundhouse with annexes to accommodate a small machine shop and a foreman's office; a flue and engine shop; a 100-ft. turntable; two engine inspection pits 100 ft. long; and a crane runway 320 ft. long to accommodate a 10-ton traveling crane with a 25-ft. span, to convey heavy parts from the new roundhouse to the flue, babbitt and machine shops. The roundhouse will be 106 ft. deep, of reinforced concrete and brick construction with steel windows and hollow tile roof. Paving will be of creosoted long-leaf yellow pine on a concrete foundation. Flood lighting will be used for general illumination with ample portable lights to facilitate work on obscure parts Provision will be made for dropping driving wheels from five engines and truck and tender wheels from two engines at the same time. Crane girders will be installed the entire length of the building, permitting the installation of lifting devices with range to reach heavy parts of locomotives in all 37 stalls. A boiler washing and filling system will permit the washing and filling of boilers with hot water on 26 stalls. The small machine shop will be equipped with necessary machine tools to make light running repairs. The flue and babbitt shop will be 51 ft. by 155 ft. It will have pile foundation, reinforced concrete footings and curtain walls, steel frame, gypsum roof slab, steel windows and doors and will be of the daylight type, the entire enclosure from the window sills up, to be of steel and glass. The babbitt room will have a creosoted wood block floor, similar to that of the roundhouse, and the flue room will be paved with cinders. The turntable will be of the end-bearing type with sufficient capacity to handle the largest locomotives and will be motor-operated. The engine-inspection pits will be installed on the incoming engine track.

SOUTHERN.—This company has awarded a contract to W. Toelle, Princeton, Ind., for the construction of a planing mill at Princeton, reported in the *Railway Age* of January 26.

SOUTHERN PACIFIC.—This company has awarded a contract to the Utah Construction Company, San Francisco, Cal., for the construction of an additional 11 miles of the Natron cut-off from Oakridge, Ore., to Summit, reported in the *Railway Age* of February 18. A contract has also been awarded to the Stewart & Welch Company, Seattle, Wash., for an additional seven miles of line.

SPOKANE & EASTERN.—This company plans the construction of a steel girder span over the tracks of the Oregon-Washington Railroad and Navigation Company at Garfield, Wash., at a cost of $15,000.

TUCSON, PHOENIX & TIDEWATER.—This company has purchased land at Phoenix, Ariz., as a site for a passenger and freight station.

WABASH.—This company plans the immediate re-construction of its shops at Decatur, Ill., which were recently destroyed by fire at a loss estimated at $1,000,000.

WABASH.—This company plans the construction, jointly with the Canadian National, of a roundhouse and locomotive repair shops at St. Thomas, Ont.

WEST AUSTRALIAN GOVERNMENT RAILWAYS.—This company has awarded a contract to the Roberts & Schaefer Company, Chicago, for the installation of a coaling station at Freemantle, West Australia.

THE CHICAGO FREIGHT RATE CLUB has been organized by representatives of the commercial offices of the railroad and steamship lines in Chicago, to create a better understanding of mutual problems. Regular meetings will be held at which subjects of general information will be discussed. Officers elected were, president, M. S. Buck, freight rate clerk of the Great Northern; vice-president, J. T. Wright, chief rate clerk of the Southern Pacific; secretary, C. M. Gautwick, export freight rate clerk of the Northern Pacific; and treasurer, M. Leen, chief freight rate clerk of the Chicago, Milwaukee & St. Paul.

Railway Financial News

ABERDEEN & ROCKFISH.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $50,000 of 6 per cent bonds to be sold to the Virginia Trust Company at 92½.

ARIZONA EASTERN.—*Hearing on Appeal.*—Hearing on the appeal of the Arizona Eastern against the order of the Arizona Corporation Commission terminating its lease of the Phoenix & Eastern, has been set for March 8 at Los Angeles, Cal., in the United States Circuit Court of Appeals.

ARIZONA EASTERN.—*Appeals Termination of Lease.*—The Arizona Eastern has appealed to the United States Circuit Court of Appeals for relief from the order of the Arizona Corporation Commission terminating its lease of the Phoenix & Eastern. The order of the commission was reported in the *Railway Age* of January 19.

ATCHISON, TOPEKA & SANTA FE.—*Asks Authority to Acquire Stock.*—Application has been made to the California Railroad Commission for authority to acquire by transfer and assignment by the Santa Fe Land Improvement Company, all of the outstanding capital stock of the California Southern Railroad which owns a line between Rice, Cal., in Riverside county and Ripley, a distance of 49 miles.

CENTRAL OF GEORGIA.—*Bond Issue.*—This company has applied to the Interstate Commerce Commission for authority for the sale of $5,000,000 of refunding and general mortgage 5½ per cent bonds, to reimburse the treasury for expenditures for additions and betterments, to be sold to Kuhn, Loeb & Co., at 94.

CHICAGO, PEORIA & ST. LOUIS.—*Sale Postponed Indefinitely.*—The sale of this road, which had been set for March 15, has been again postponed indefinitely following an order of the Illinois Supreme Court specifying that the property be sold as a whole.

CINCINNATI, NEW ORLEANS & TEXAS PACIFIC.—*Authorized to Assume Obligation.*—The Interstate Commerce Commission has authorized this company to assume, as lessee of the Cincinnati Southern, the obligation of paying as additional rental the interest on $100,000 of 4½ per cent municipal bonds of the city of Cincinnati and of paying 1 per cent of the principal to provide a sinking fund for their redemption at maturity.

GEORGIA, SOUTHERN & FLORIDA.—*Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $438,000 of debenture 5 per cent gold bonds in settlement of its obligation as guarantor of $571,000 of bonds of the Hawkinsville & Florida Southern, to be delivered to the holders of the latter bonds.

KANSAS CITY, MEXICO & ORIENT.—*Date of Sale.*—The sale of the Kansas City, Mexico & Orient, which has been ordered to satisfy a government loan, has been set for March 27 at Wichita, Kans. Bids will be received for the property in whole or in part. The terms of the sale provide that the purchaser must continue operation of the road.

KANSAS & MISSOURI RAILWAY & TERMINAL COMPANY.—*Stock Issue.*—The Interstate Commerce Commission has authorized an issue of 8,000 shares of capital stock without par value and $800,000 of first mortgage 6 per cent gold bonds; the stock and $379,000 of bonds to be used in connection with the acquisition of the Kansas City Outer Belt & Electric Company and $421,000 of the bonds to be used to complete its construction.

MINNEAPOLIS & ST. LOUIS.—*Deposit of Bonds.*—The protective committee for the first and refunding mortgage 4 per cent 50-year gold bonds is urging prompt action by holders who have not deposited their bonds. Proceedings for the foreclosure of the mortgage securing these bonds can be commenced at any time, and in the pending receivership creditors claiming preference over the mortgage in question have filed claims reported to be over $7,000,000.

NEW YORK CENTRAL.—*Chicago Junction Case Sent Back to Lower Court.*—The United States Supreme Court, in a decision handed down on March 3, reversed the decision of the federal court at Chicago on the application of the Baltimore & Ohio, Pennsylvania and other lines at Chicago for an injunction against the decision of the Interstate Commerce Commission allowing the New York Central to acquire control of the Chicago Junction and the Chicago River & Indiana. The roads had taken the position that the evidence before the commission was not sufficient to justify its order and the lower court had refused to hear the case on its merits on the ground that the roads had no "suable interest" in the question involved. The Supreme Court's decision sends the case back to the lower court on the point of whether there was sufficient evidence in the record before the commission to support its order. The Supreme Court did not pass directly upon the merits of the order.

NEW YORK, CHICAGO & ST. LOUIS.—*New Mortgage Planned.*—Representatives of this road and officials of the Guaranty Trust Company, bankers for the system, are working on the details of a new blanket mortgage to cover all the properties of the consolidated company.

NEW YORK, NEW HAVEN & HARTFORD.—*Abandonment.*—The Interstate Commerce Commission has issued a certificate authorizing the abandonment of a branch line from East Farms to Meriden, Conn., 11.78 miles.

NORFOLK & WESTERN.—*Equipment Trust Certificates.*—This company has applied to the Interstate Commerce Commission for authority to guarantee $12,000,000 of 4½ per cent equipment trust certificates to be issued by the Virginia Holding Company and to be offered for sale at not less than 95.

OIL FIELDS SHORT LINE.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Clifford to Dilworth, Okla., 5 miles.

PORTLAND TERMINAL COMPANY.—*Bond Issue.*—This company and the Maine Central have jointly applied to the Interstate Commerce Commission for authority to the Portland Terminal Company to issue and to the Maine Central to guarantee an issue of $1,800,000 first mortgage 5 per cent gold bonds to reimburse the treasury and to pay off some maturities.

Railroad Administration Settlements

The United States Railroad Administration reports the following final settlements, and has paid out and received from the several roads the following amounts:

Kansas City Terminal Railway Company	$275,000
Litchfield & Madison Railway Company	225,000
Peoria Railway Terminal Company	1
Paducah & Illinois Railroad Company	1
Monongahela Railway Company paid Director General	1,900,000
Lorain, Ashland & Southern Railroad Co., paid Director General	75,000
Minnesota Transfer Railway Company paid Director General	12,400
Memphis, Dallas & Gulf Railroad Company acknowledge indebtedness to Director General of	60,000
SHORT LINES	
Pittsburg, Shawmut & Northern Railroad Co.	95,000
Statenville Railway Company	600
Wichita Northwestern Railway Company paid Director General	50,000

Dividends Declared

Bangor & Aroostook.—Preferred, $1.75, quarterly, payable April 1 to holders of record March 17.

Buffalo & Susquehanna.—Common, 1¾ per cent, quarterly, and 2½ per cent (extra), payable March 31 to holders of record March 15.

Fonda, Johnstown & Gloversville.—Preferred, 1½ per cent, quarterly, payable March 15 to holders of record March 10.

Lackawanna Railroad of New Jersey.—1 per cent, quarterly, payable April 1 to holders of record March 8.

Southern Railway (Mobile & Ohio stock transfer certificates).—$2.00, semi-annually, payable April 1 to holders of record March 15.

Trend of Railway Stock and Bond Prices

	March 5	Last Week	Last Year
Average price of 20 representative railway stocks	62.06	61.84	69.41
Average price of 20 representative railway bonds	83.76	83.58	84.05

Annual Report

Thirty-ninth Annual Report of the Buffalo, Rochester & Pittsburgh Railway Company

The Directors of the Buffalo, Rochester and Pittsburgh Railway Company submit to the Stockholders the following report for the year ending December 31, 1923.

ROAD OPERATED

	1923 Miles	1922 Miles	Increase
Owned	270.28	368.31	1.97
Leased	90.30	90.30	
Trackage rights	131.11	131.11	
Total length of road operated	591.69	589.72	1.97
Second track	212.59	212.59	
Sidings	470.39	458.83	11.56
Total miles of all tracks, all steel rail	1,274.67	1,261.14	13.53

The increase of road operated is due to the construction of 1.97 miles of mine line.

Sidings were increased 11.56 miles.

INCOME

	1923	1922	Increase or Decrease
OPERATING INCOME:			
Revenues	$22,024,650.59	$16,746,506.17	$5,278,144.42
Expenses	20,175,268.68	16,332,659.39	3,842,609.29
Net revenue	$1,849,381.91	$413,846.78	$1,435,535.13
Tax accruals	$401,023.05	$367,015.86	$34,007.19
Uncollectible revenues	863.21	4,787.84	—3,924.63
	$401,886.26	$371,803.70	$30,082.56
Total operating income	$1,447,495.65	$42,043.08	$1,405,452.57
NON-OPERATING INCOME:			
Rental — U. S. Guar. Period		61,093.21	—61,093.21
Other items	2,116,279.61	1,108,206.84	1,008,072.77
	$2,116,279.61	$1,169,300.05	$946,979.56
Gross income	$3,563,775.26	$1,211,343.13	$2,352,432.13
Deduction for interest, rentals, etc.	2,482,276.72	2,402,508.32	79,768.40
Net income—Surplus available for dividends	$1,081,498.54	(Def.) $1,191,165.19	$2,272,663.73
Return on capital stock	6.55%	(Loss) 7.22%	13.77%

Taxes advanced 9.27% to $401,023.05 due to higher assessments on real estate in New York State, and increased taxes imposed on capital stock and gross receipts.

The increase in non-operating income came principally from the favorable balance in "Hire of freight cars" account.

The increase of $79,768.40 in the deductions for interest, rentals, etc., is the result of additional rental for joint facilities and interest on the increased amount of the funded and unfunded debt.

The net income for the year is $1,081,498.54, an increase of $2,272,663.73 over the preceding year, and is equal to 6.55% on both classes of stock.

DIVIDENDS

Dividends, out of the accumulated surplus in Profit and Loss Account, were paid in cash on:

			1923		1922
Preferred stock	$6,000,000	6%	$360,000	6%	$360,000
Common stock	10,500,000	4%	420,000	4%	420,000
Total	$16,500,000		$780,000		$780,000

Since the close of the fiscal year your Board of Directors has declared semi-annual dividends of three per cent on the preferred stock and two per cent on the common stock, payable February 15, 1924.

CAPITAL STOCK

There has been no change during the year in this account. The total outstanding capital stock of the Company amounts to $16,500,000, and consists of $6,000,000 preferred stock and of $10,500,000 common stock.

FUNDED DEBT

With the approval of all governmental authorities and in accordance with the provisions of the Consolidated Mortgage of 1907, the trustee delivered to the Company during the year $1,500,000 Consolidated 4½% mortgage bonds, which were all placed in the Treasury.

In order to provide funds for the purchase of additional rolling stock an issue of $1,920,000 five per cent gold bonds was authorized and sold. These bonds were issued under an agreement known as "Equipment Agreement Series L" dated March 1, 1923, and secured by new equipment costing $2,407,300. The bonds mature in annual instalments of $128,000, commencing June 1, 1924, and ending June 1, 1938.

The following bonds were retired during the year:

Equipment Agreement Series	F	$176,000
"	G	177,000
"	H	125,000
"	J	90,000
"	K	80,000
"	10	133,600
Total		$781,600

The net result is an increase of $1,138,400 in the funded debt of the Company. There are now in the Treasury of the Company $5,350,000 consolidated 4½% mortgage bonds of which $1,600,000 are pledged and the balance free.

LOANS

In order to obtain the necessary funds for corporate purposes, it was found advisable during the year to issue the Company's demand notes for $1,000,000, bearing interest at the rate of 5½ per cent per annum.

COST OF ROAD

Capital account was charged during the year with $1,382,926.34 for investment in road as follows:

Subway, Brown St., Rochester, N. Y.	$16,162.53
Elimination of grade crossing, Warsaw, N. Y.	90,150.36
Wigwag signals at grade crossings	10,051.19
Automatic stop signals on 15 miles, Rochester Division	28,920.68
New highway, Ashford to Ellicottville, N. Y.	6,666.66
New highway, Kent, Pa.	7,644.45
Overhead bridge, Carrollton, N. Y.	8,311.68
Other bridges	74,984.96
Siding facilities, Elk Run Shaft, Pa.	17,656.22
Siding facilities, Aultman, Pa.	9,757.20
Yard facilities, Buffalo, N. Y.	9,732.49
Yard facilities, Buffalo Creek, N. Y.	9,126.01
Yard facilities, Cloe, Pa.	133,214.61
Other sidings, yard extensions, etc.	17,946.73
Dock improvements, Buffalo, N. Y.	17,926.76
Dock improvements, Charlotte, N. Y.	8,573.76
New water line, Buffalo Creek, N. Y.	21,011.82
Steel water tank, Du Bois, Pa.	21,515.77
Assessments for public improvements	13,270.16
Improvements to telegraph and telephone lines	22,040.63
Mechanical ash handling plant, East Salamanca, N. Y.	154,991.59
Mechanical coal and sand handling plant, Rikers, Pa.	8,177.34
Shop extensions	47,385.22
New shop machinery and tools	60,272.21
New roadway machines and tools	7,631.36
Improvements, Rochester Terminal, N. Y.	12,690.16
Extension of Jacksonville Branch, Pa., 1.97 miles	131,442.08
Increased weight of rail, etc.	171,225.63
Increased ballast, etc.	153,815.89
Miscellaneous	90,630.19
Total	$1,382,926.34

All the work undertaken this year was completed and paid for.

Important progress was made in strengthening steel bridges, replacing timber bridges, trestles and culverts in permanent form, and in the general improvement of the road with stone ballast and heavier type of rail.

The Jacksonville Branch extension of 1.97 miles to new coal developments was completed and put in operation on October 27, 1923.

LEASED LINES

Advances were made to leased lines for expenditures for additions and betterments as follows:

Allegheny and Western Railway

Passing sidings, Valier, Pa.	$86,944.84	
Yard facilities, Echo, Pa.	60,668.21	
New sidings, New Castle, Pa.	36,570.95	
Turntable, Butler Junction, Pa.	27,449.15	
Rest room for train and engine men, Butler Jct., Pa.	6,007.89	
Increased weight of rail, etc.	17,634.17	
Increased ballast, etc.	16,349.81	
Strengthening steel bridges	183,646.05	
Miscellaneous	15,606.06	
Additional station facilities, Pittsburgh, Pa.	14,326.22	$465,203.35

Clearfield and Mahoning Railway

Eliminating grade crossing, Ferncliff, Pa.	$54,062.92	
Strengthening steel bridges	14,454.25	
Increased weight of rail, etc.	6,608.61	
Increased ballast, etc.	4,986.26	
Miscellaneous	8,029.88	88,141.92

Mahoning Valley Railroad

Increased weight of rail	111.17
	$553,456.44
Less—net amount of equipment retired	154,145.24
Net amount advanced	$399,311.20

With the exception of the strengthening of steel bridges practically all of the above work was completed during the year.

COST OF EQUIPMENT

Expenditures were made for additions to equipment as follows:

Thirty locomotives purchased	$1,771,697.21
Fifty steel underframe caboose cars and one freight car purchased	150,359.11
Ten passenger train cars purchased (partial cost)	213,017.35
Thirty-three work equipment cars purchased	189,103.87
Eight miscellaneous cars purchased	4,970.39
Twenty-five cars built at Company's shops	43,330.08
Sundry betterments, including reclassification of 15 freight train cars, 1 passenger service car and 1 miscellaneous equipment.	106,204.56
Total	$2,478,682.57

There was credited for equipment sold, transferred or destroyed the following book values, a part of which, less salvage, was charged to Operating Expenses, and the balance, representing the depreciation since June 30, 1907, was charged to Depreciation account:

Sixteen locomotives	$223,640.31	
Four hundred and ninety-four freight train cars	357,060.77	
Three passenger train cars	17,443.40	
Forty-eight work equipment cars	30,454.35	
Three miscellaneous equipment	1,997.77	630,596.60
Making a net debit of		$1,848,085.97

All of the rolling stock contracted for, mentioned in last year's report, was received and paid for, excepting six steel passenger coaches delivered in January, 1924.

With the additional heavy modern power available, your Company is able to dispose of lighter type locomotives, 16 of which were sold during the year at favorable prices. In addition two coaches of obsolete type and 250 gondolas were sold at market values.

The rolling stock statistics are affected as follows:

The total tractive power of engines now aggregates 14,810,676 pounds, an increase of 1,287,980 pounds during the year.

The average tractive power of each engine increased 3,070 pounds, being 49,700 pounds as against 46,630 pounds a year ago.

The total carrying capacity of cars in freight service now amounts to 705,525 net tons, a decrease of 21,857.

The average carrying capacity or efficiency of each freight car increased .26 tons, being 44.63 tons as against 44.37 tons last year.

Of the cars in passenger service 55.67 per cent are of all steel construction, and in the freight service 98.72 per cent of the cars are all steel, or are equipped with steel underframes.

The following table indicates the relative changes in equipment for the past ten years:

	Tractive power of engines in lbs.		Capacity of cars in freight service in tons of 2,000 lbs.	
	Average of each engine	Aggregate tractive power	Average for each car	Aggregate capacity
1914	34,782	10,643,255	42.29	737,498
1915	35,999	11,627,535	43.19	751,531
1916	36,257	11,493,536	43.25	750,847
1917	39,060	12,773,410	43.37	737,327
1918	43,312	16,025,362	43.94	777,657
1919	44,100	15,346,830	43.97	771,541
1920	45,630	14,281,845	44.12	748,215
1921	46,400	13,688,103	44.20	737,255
1922	46,630	13,522,696	44.37	727,382
1923	49,700	14,810,676	44.63	705,525
Increase over 1914	14,918	4,167,421	2.34	(Decrease) 31,973
Per cent	42.89	39.16	5.53	4.34

PASSENGER REVENUES

The gross passenger revenue amounted to $1,762,855.89, an increase of 6.69 per cent or $110,500.84 over the same period in 1922.

The average rate received per passenger per mile decreased .068 cent, being 3.211 cents as compared with 3.279 the preceding year.

The average distance each passenger was carried increased 2.1 miles, being 31.7 miles against 29.6 miles.

Passengers carried in 1923	1,732,760	
Passengers carried in 1922	1,704,172	
An increase of 1.68 per cent, or		28,588
Passengers carried one mile in 1923	54,902,112	
Passengers carried one mile in 1922	50,389,629	
An increase of 8.96 per cent, or		4,512,483

FREIGHT TONNAGE

The gross freight revenue exceeded any former year and amounted to $19,310,381.93, an increase of $4,943,943.78, or 34.41%, over 1922.

The average rate received per ton per mile decreased .095 cents, being .870 cents as compared with .965 cents for the same period in 1922, chiefly due to the increased tonnage of iron ore, road material and other low rate commodities.

The average distance each ton was hauled increased 4.29 miles, being 157.70 miles, against 153.41 miles last year.

The revenue tonnage moved was as follows:

	1923	1922	Increase
Bituminous coal	8,215,718	5,568,494	2,647,224
Coke	371,333	176,422	194,911
Iron ore	611,502	159,492	452,010
Pig and bloom iron	217,102	129,675	87,427
Other freight	4,651,209	3,680,971	970,238
Total	14,066,864	9,715,054	
An increase of 44.79% or			4,351,810
Tons moved one mile in 1923			2,218,411,169
Tons moved one mile in 1922			1,490,400,252
An increase of 48.85% or			728,010,917

While the coal and coke tonnage shows a material increase over the previous year, it is considerably below the normal capacity of the collieries tributary to your line, due to the decreased demand prevailing and the low prices made by non-union operators.

The volume of other traffic is the largest in the history of the Company, all commodities showing increases.

The average number of revenue tons carried one mile per revenue freight train mile, excluding the mileage of helping engines, increased 60.47 tons, being 850.42 tons against 789.95 tons a year ago.

The average number of revenue tons carried one mile per revenue freight engine mile, including the mileage of helping engines, increased 19.37 miles, being 553.69 miles against 534.32 miles a year ago.

The averages for the past ten years are as follows:

	Train load	Engine load
Year ending June 30, 1914	694	454
1915	707	477
1916	786	502
Six months ending December 31, 1916	792	510
Year ending December 31, 1917	836	545
1918	943	602
1919	884	586
1920	943	602
1921	754	520
1922	790	534
1923	850	554
Increase over 1914	156	100
Per cent	22.5	22.0

The non-revenue freight traffic, not included in any other figures of this report, is as follows:

	1923	1922
Number of tons	1,282,098	921,452
Number of tons carried one mile	114,212,378	88,224,802

EXPENSES

Operating expenses increased $3,842,609.29 or 23.53%, in which each primary account participated, as follows:

	Increase	Decrease	Per cent
Maintenance of way	$1,521,786.63		63.63
Maintenance of equipment	574,516.51		8.83
Traffic	71,718.24		30.22
Transportation	1,722,450.65		25.67
Miscellaneous operations	3,753.68		13.30
General	39,586.75		8.34
Transportation for investment, Cr.		$91,203.17	
Total	$3,842,609.29		23.53

Extraordinary expenses were incurred this year in connection with the numerous improvements made and in overcoming deferred maintenance. As a result your property now is in good condition for handling a maximum tonnage.

The increase in traffic expenses is due principally to the extension of off-line agencies.

An increase of wages affecting clerks and station employes and shop employes effective July 1, 1923, added approximately $105,000 to expenses.

In general, the increases in the expenses of the other groups can be attributed to the greater traffic.

In spite of the abnormal expenditures, the operating ratio is lower than for any year since 1917.

The percentage of each group of operating expenses to the operating revenue for the past seven years is as follows:

	1923	1922	1921	1920	1919	1918	1917
Maint. of way	17.77	14.28	13.75	16.58	16.95	15.28	9.71
Maint. of equipment	32.14	38.85	34.18	31.05	37.73	32.29	27.00
Traffic	1.40	1.42	1.50	1.03	1.26	1.02	1.28
Transportation	38.29	40.07	43.33	45.98	48.73	44.26	38.82
Misc. operations	.15	.17	.21	.17	.20	.14	.14
General	2.33	2.83	3.38	2.46	2.82	2.13	2.37
Transp. for Inv. Cr.	.48	.09	.01	.06	....	....	....
	91.00	97.53	96.34	97.21	107.69	95.12	79.32

The average cost per ton per mile is .790 cents, a decrease of .122 cents from last year.

PENSIONS

The pension system was inaugurated on July 1, 1903. At present the total number of pensioners on the rolls is 103, and the pensions paid during the year amounted to $65,869.34, an increase of four pensioners and $9,156.41 in the payments made compared with 1922.

The statistics for the past five years are as follows:

	1923	1922	1921	1920	1919
Total number enrolled	211	196	177	159	142
Number deceased or discontinued	108	97	89	79	70
Number on roll	103	99	88	80	72
Amount paid	$65,869.34	$56,712.93	$47,975.75	$39,585.84	$33,224.46

GENERAL REMARKS

The valuation of your lines by the Interstate Commerce Commission, begun as of July 1, 1917, has progressed to the extent that undoubtedly a tentative valuation may be served upon us during the coming year. The cost of valuation work on your Company's properties to date has reached $257,826.33, of which $69,005.20 was assumed by the United States Railroad Administration.

In July, 1923, a new trackage agreement was made with the Pennsylvania Railroad Company renewing their use of 9.1 miles of your line from Riverside Junction, N. Y., to Bradford, Pa., for a period of five years from April 1, 1922, and thereafter until cancelled by one year's notice in writing given by either party.

In the matter of the consolidation of the railway properties of the United States into a limited number of systems, your Company has filed a brief with the Interstate Commerce Commission suggesting that it be left for later determination in accordance with future developments which alliance will be most natural, most economical and most in the public interest and that your line at this state of the record should be tentatively grouped in each of the following groups:

Number 1. New York Central.
3. Baltimore and Ohio.
5. Lehigh—Nickel Plate.
7a. New England—Great Lakes Group.

Subject to its inspection and acceptance, the automatic train control and safety stop devices ordered by the Interstate Commerce Commission on June 13, 1922, were installed on 15 miles of main track on the Rochester Division, at a most to date of $28,920.68.

The acknowledgments of the Board are renewed to its officers and loyal employes for their faithful and efficient service.

By order of the Board,

WILLIAM T. NOONAN,
President.

Rochester, N. Y., February 15, 1924.

[ADVERTISEMENT]

Railway Officers

Executive

E. M. Durham, Jr., director of the Division of Liquidation Claims of the United States Railroad Administration, with headquarters at Washington, D. C., has been appointed assistant to the president of the Missouri Pacific, with headquarters at St. Louis, Mo.

Financial, Legal and Accounting

J. P. McDonald has been appointed statistician of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., succeeding **C. A. Casler,** assigned to other duties in Chicago.

Operating

R. W. Rogers has been appointed trainmaster of the Georgia division of the Seaboard Air Line, with headquarters at Atlanta, Ga.

W. D. Beck, whose promotion to chairman of the Chicago Car Service Committee of the American Railway Association, with headquarters at Chicago, was reported in the *Railway Age* of March 1, was born on May 29, 1871, at Chemung, Ill. He entered railway service in 1886 as a station helper on the Chicago & North Western and was later promoted to telegrapher and to train dispatcher. He then served as chief clerk to the division superintendent and was later promoted to station master of the Chicago passenger terminal. Mr. Beck was subsequently promoted to assistant superintendent and later to division superintendent. In 1910 he left railway service to engage in commercial business but he returned to the service of the Chicago & North Western in 1912, as chief clerk to the president. He was later promoted successively to superintendent of dining cars and superintendent of the passenger terminal at Chicago. During the period of federal control, Mr. Beck was appointed superintendent of the Eastern division and in March, 1920, he was promoted to superintendent of car service, with headquarters at Chicago. He continued in this position until his recent appointment as chairman of the Chicago Car Service Committee of the American Railway Association.

W. D. Beck

F. R. Lloyd, assistant superintendent of the Galena division of the Chicago & North Western, with headquarters at Chicago, has been promoted to superintendent of the Peninsula division, with headquarters at Escanaba, Mich., succeeding **C. E. Helmer,** who has retired. **A. R. Pelnar,** assistant superintendent of the Iowa division, with headquarters at Boone, Ia., has been transferred to the Galena division, succeeding Mr. Lloyd. **W. F. Carroll,** trainmaster of the Wisconsin division, with headquarters at Chicago, has been promoted to assistant superintendent of the Iowa division, succeeding Mr. Pelnar. **H. J. Ewing** has been appointed trainmaster of the Wisconsin division, with headquarters at Chicago, succeeding Mr. Carroll.

Henry Blakely, freight traffic manager of the Northern Pacific, with headquarters at St. Paul, Minn., has been promoted to the newly created position of assistant vice-president in charge of traffic with the same headquarters. **L. R. Capron,** assistant freight traffic manager, with headquarters at St. Paul, has been promoted to freight traffic manager, with the same headquarters, succeeding Mr. Blakely. **T. B. Montgomery,** general freight agent, with headquarters at St. Paul, has been promoted to assistant freight traffic manager, with the same headquarters, succeeding Mr. Capron. **C. R. Lonergan,** assistant to the vice-president in charge of traffic, with headquarters at St. Paul, has been promoted to general freight agent, with the same headquarters, succeeding Mr. Montgomery.

Mr. Blakely was born on November 27, 1854, at Galena, Ill., and was educated at the University of Minnesota and Rensselaer Polytechnic Institute. He entered railway service in July, 1888, as a clerk in the traffic department of the Northern Pacific. In April, 1889, he was promoted to acting chief clerk and in November of that year, to chief clerk. He was appointed secretary to the general traffic manager in October, 1894, and he held this position until January, 1900, when he was promoted to division freight agent. Mr. Blakely was promoted to assistant general freight agent in May, 1903, and he was promoted to general western freight agent, with headquarters at Tacoma, Wash., in August, 1905. In December, 1913, he was promoted to general freight agent, with headquarters at St. Paul, and he held this position until January, 1921, when he was promoted to freight traffic manager. Mr. Blakely continued in this capacity until his recent promotion to assistant vice-president in charge of traffic.

Henry Blakeley

Mr. Capron was born on June 27, 1888, at Litchfield, Ill. He entered railway service in April, 1902, as an office boy on the Chicago, Burlington & Quincy and in August, 1903, he was employed in a similar capacity in the office of the auditor of freight receipts of the Northern Pacific. He was promoted to clerk in September, 1903, and in March, 1904, he was transferred to the general freight department. He was promoted to mailing clerk in June, 1905, and subsequently was promoted to chief mailing clerk, assistant rate clerk and rate clerk. Mr. Capron was promoted to chief rate clerk in May, 1910, and he held this position until December, 1913, when he was promoted to assistant chief clerk. In October, 1914, he was promoted to chief clerk to the second vice-president. Mr. Capron was promoted to assistant general freight agent, with headquarters at St. Paul, in April, 1915. He was transferred to Seattle, Wash., in March, 1920, and he continued in this position until July, 1921, when he was promoted to assistant freight traffic manager, with

L. R. Capron

headquarters at St. Paul. Mr. Capron held this position until his recent promotion to freight traffic manager.

Mr. Montgomery was born on October 7, 1870, at Aylmer, Ont. After graduating from the Upper Canada College at Toronto, he entered railway service in January, 1889, as a clerk. He was appointed night agent of the Wagner Sleeping Car Company in March, 1893, and in March of the following year he was promoted to assistant district superintendent. When the Wagner Company was absorbed by the Pullman Company in January, 1900, he was appointed agent for the latter company and he held this position until May, 1900, when he was appointed traveling freight agent for the Wisconsin Central, now a part of the Minneapolis, St. Paul & Sault Ste. Marie. Mr. Montgomery was promoted to New England agent in January, 1901, and in December, 1902, he was promoted to general agent at Milwaukee, Wis. He was transferred to Pittsburgh, Pa., in July, 1904, and in May, 1907, he was transferred to Chicago. In March, 1912, he was appointed general agent for the Chicago, Milwaukee & St. Paul, at Pittsburgh, Pa., and he held this position until April, 1915, when he was promoted to assistant general freight agent at Minneapolis. Mr. Montgomery was promoted to general eastern agent, with headquarters at New York, in December, 1916. He entered the service of the Northern Pacific in February, 1920, as general eastern agent, with headquarters at New York. He was promoted to assistant freight traffic manager, with headquarters at St. Paul, in September, 1920, and in January, 1921, he was promoted to general freight agent. Mr. Montgomery held this position until his recent promotion to assistant freight traffic manager.

T. B. Montgomery

Mr. Lonergan was born on April 18, 1877, at Fond du Lac, Wis., and entered railway service in September, 1892, as an office boy on the St. Paul & Duluth, now a part of the Northern Pacific. He was later promoted to operator, agent and contracting freight agent. In July, 1900, he was appointed chief clerk in the traffic department of the Northern Pacific at Minneapolis, and in September of that year he was promoted to traveling freight agent. Mr. Lonergan was promoted to agent at Ashland, Wis., in 1903, and he held this position until May, 1908, when he was promoted to general agent at Wallace, Idaho. He was transferred to Tacoma, Wash., in March, 1910, and to Spokane, Wash., in May, 1911. He was promoted to assistant to the vice-president in charge of traffic in March, 1920, and held this position until his recent promotion to general freight agent.

C. R. Lonergan

D. T. Ayers has been appointed car service agent of the Southern Pacific, with headquarters at San Francisco, Cal.

H. A. Sugars has been appointed trainmaster of the First District, Arizona Division, of the Atchison, Topeka & Santa Fe, with headquarters at Needles, Cal.

Mechanical

F. J. Cheshire, superintendent of shops of the Baltimore & Ohio, with headquarters at Sandusky, Ohio, has been transferred to South Chicago, Ill. **A. W. Fisher** has been appointed superintendent of shops at Sandusky, succeeding Mr. Cheshire.

M. J. Dunnebacke has been appointed master mechanic of the Duluth, South Shore & Atlantic, succeeding J. Herron, superintendent of motive power and machinery, who has resigned. The office of superintendent of motive power and machinery has been abolished.

W. H. Fetner, assistant to the president of the Missouri Pacific, with headquarters at St. Louis, Mo., has been promoted to chief mechanical officer, with the same headquarters, a newly created position. A sketch and photograph of Mr. Fetner were published in the *Railway Age* of September 15, 1923, on page 505.

O. E. Hallberg, assistant superintendent of car service of the Chicago & North Western, with headquarters at Chicago, has been promoted to superintendent of car service, with the same headquarters, succeeding W. D. Beck, whose appointment as chairman of the Chicago Car Service Committee of the American Railway Association was reported in the *Railway Age* of March 1. **G. C. Boomer,** supervisor of merchandise and perishable freight, with headquarters at Chicago, has been promoted to assistant superintendent of car service, succeeding Mr. Hallberg. Mr. Hallberg was born on September 17, 1887, at Ottumwa, Ia. He entered railway service in October, 1902, in the operating department of the Chicago & North Western and subsequently was promoted to various position in that department. He was promoted to assistant superintendent of transportation in April, 1917, and he held this position until March 1, 1920, when he was promoted to superintendent of car service. Mr. Hallberg resigned in August, 1920, to become traffic manager of the Nash Sales Company of Chicago, but he remained in this position for only a year, returning to the Chicago & North Western as assistant superintendent of car service in August, 1921. He continued in this capacity until his recent promotion to superintendent of car service.

Engineering, Maintenance of Way and Signaling

Frederick Wood, assistant engineer maintenance of way of the Pennsylvania, retired from active service on March 1, at the age of 70 years, in conformance with the pension rules of the company. Mr. Wood is an alumnus of Yale University, having been graduated from Sheffield Scientific School in 1875.

H. K. Lowry, signal engineer of the Chicago, Rock Island & Pacific, with headquarters at Chicago, has resigned to enter the service of the Sprague Train Control & Signal Corporation. **Joseph B. Strauss,** consulting engineer at Chicago, has been appointed consulting engineer of bridges for the Republic of Panama.

Purchasing and Stores

H. J. Saabye, assistant purchasing agent of the Boston & Maine, has resigned to become Boston manager for A. H. Powell & Company, Inc., wholesale coal dealers of New Haven, Conn.

Special

W. M. Stuart has been appointed Chicago press representative of the Canadian Pacific, with headquarters at Chicago, succeeding **E. H. Eaton,** who has been promoted to United States press representative, with headquarters at New York.

Obituary

R. L. Hearon, vice-president and general manager of the Colorado & Wyoming, with headquarters at Denver, Colo., died in that city on February 26.

F. L. Coykendall, formerly assistant division superintendent of the Oregon-Washington Railroad & Navigation Company, who retired in 1921, died on February 27, at Portland, Ore.